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HOUSING FOR LIVERPOOL

THE report on housing for the City of Liverpool, prepared by Mr. L. H. Keay, City Architect and Director of Housing (extracts from which are given elsewhere in this issue), must be welcomed as a good example of what such a report should cover and as an orderly presentation of the problems involved and the appropriate types of solution.

The opening section deals with the present housing deficiency and its causes; before the present war some 19,000 dwellings were required, while damage and other circumstances since 1939 add 13,000 to this demand, making 32,000 in all as the present shortage. In considering a 25 years' programme, some additional 59,000 condemned or obsolescent dwellings demand replacement. A zone plan of Liverpool shows five areas, one for docks, industry and business, and the other four graded for various housing densities, ranging from 92 persons to the gross acre for the riverside zone, to 69, 55, and 34 per acre in the three rings outside this. It should be noted that development is complicated by the fact that some large areas are in the hands of the Government for war purposes and that the borough of Bootle adjoins the city to the north and is under independent control, though practically as much a part of the "conurbation" as Salford is of Manchester and Hove of Brighton, rendering it desirable that such groups should be considered in conjunction with each other: moreover, there is the populous area across the Mersey which is an integral part of the Liverpool organisation both industrially and residentially. The latter of these two aspects has for long been recognised as an important factor in the development of this Wirral peninsula.

The activities of this Merseyside group are very varied, and it would have added to the interest of this report had it included a brief social and occupational survey. No doubt Mr. Keay is well acquainted with the influence of the demands such conditions create, as these must form a basis for his proposals, and largely dictate their character; they have already been studied and work is now going on which will indicate their relationship, together with that of communications, and the other components of a comprehensive scheme of reconstruction, to its housing elements.

While general standards are regarded as desirable, it is gratifying to see that these are not intended to be too rigidly applied to planning and replanning, and that amendments may be thought essential for a variety of reasons. The report lays down that "Planning is a creative art and because towns are living organisations it must be flexible and made receptive to the changing conditions as they arise. Town-planning—which is to some extent a misnomer—because it is primarily regulatory, tends to 'freeze' land and to prevent any variation of usage which altering conditions often require."

For the various zones densities are specified net, viz., for the portions fully occupied by houses and service roads, and gross, *i.e.*, inclusive of all the appropriate communal requirements such as schools, clinics, shopping, open spaces and other accommodation locally demanded. As a rough general average the net area is about half the total, and thus the net density is approximately double the gross, including in the latter for a few small local industries and main roads for access, but not the large industrial groups and the demands of general transport.

The layout plans, both realistic and diagrammatic, are well considered and instructive, and are based on sub-divisions of the "precinct" type to provide for groups of 10,000 persons separated by natural features favouring open space or by main lines of communication. In relation to these, the table of standards will, it is claimed, be of use not only as a guide for the preparation of housing proposals, but also in estimating the extent of any "spill-over" involved by the application of the suggested density standards. These are dealt with comprehensively in relation to the general scheme of development for the city as a whole.

The interests of those concerned in house building in general will find greater satisfaction in the study of the detailed plans for flats and houses, and in comparing these with the series issued in the recent report from Leeds. Most of the flats are well planned on lines appropriate to the requirements, but the designs for cottages show some striking departures from tradition which may be acclaimed as offering not only very attractive and economical plans for the individual homes, but also various combinations in grouping. The planning of cottages *en échelon* may be regarded as a brilliant variation offering definite advantages if the orientation were equally well managed. Unfortunately, this is not the case in most of the block plans indicating this, as in these about half the cottages would get very little sunlight in the principal rooms. This is quite obviously the case where the group is in the form of an "X" and the proportion is even worse with the "V" group pointing northward; a "V" pointing southward would be the best ideal to aim at, and the block plans might well be reconsidered from this point of view. At the same time, footway access to the gardens might be added to give direct access to the children's playgrounds independent of the traffic routes and to avoid servicing the garden through the house. This latter criticism applies to the cottage plans generally as preferable and more economical than tunnel ways through terrace houses.

As the mother of the earliest provincial school of architecture and town-planning, it is only to be expected that Liverpool should make a good showing in its methods and programme; it is, moreover, pleasant to notice that Mr. Keay is careful to give credit to his assistants by providing that the drawings reproduced are signed by those responsible for their production.

NOTES AND NEWS

City of London Plan.

At a recent meeting of the Court of Common Council, over which the Lord Mayor presided, Captain Alfred Instone moved that in view of the conflicting Press reports regarding the non-publication of the City plan the Improvements and Town Planning Committee should be instructed to make a statement. The motion was carried by a very large majority.

A draft scheme for a City of London Plan—prepared by Messrs. Kenneth Lindy and B. A. P. Winton Lewis—is now on show at the Incorporated Association of Architects and Surveyors, 75, Eaton-place, S.W.1. Reference to the scheme is made on page 196.

Sir Ian MacAlister: An Accident.

The presentation which was to have been made to Sir Ian MacAlister at the R.I.B.A. on March 21 has had to be postponed indefinitely. Sir Ian was recently knocked down in the black-out, and has, we learn, broken an arm. He is, his friends will hear with pleasure, making progress, and after a spell in St. Bartholomew's Hospital, went on Tuesday to a convalescent home.

The Aaron V.C. Memorial Fund.

Mr. J. S. Allen, A.R.I.B.A., Vice-Principal of Leeds College of Art, writes, with reference to the Arthur Louis Aaron V.C. Memorial Fund, that the Fund to date is £2,151 7s. 4d. This is in addition to Mr. Charles Brotherton's gift of one complete scholarship. The list includes contributions from private donors and £52 10s. from the West Yorkshire Society of Architects. The parents of old students of the School of Architecture and practising members of the profession have already proved most generous.

The purpose of the Fund is to provide an architectural scholarship in memory of Flight-Sergt. Aaron, the 21-years-old Leeds pilot who was posthumously awarded the V.C. last November for gallantry and devotion to duty during a raid on Turin. The scholarship, which will cover a five-years course at Leeds School of Architecture, where Flight-Sergt. Aaron was studying until he joined the R.A.F., will be open to boys from his old school, Roundhay, and other Leeds secondary schools. The appeal is organised by a committee composed of representatives of the Boards of Governors of Leeds College of Art and Roundhay School, with the co-operation of the Education Committee and the Press. Donations should be sent, and cheques made payable, to the Arthur Louis Aaron, V.C., Memorial Fund, Westminster Bank, Ltd., Park-row, Leeds, 1.

Quantity Surveyors' Meeting.

A general meeting of members qualified as quantity surveyors will be held at the Chartered Surveyors' Institution, 12, Great George-street, Westminster, S.W.1, on Wednesday, March 15, at 4.30 p.m. The subject for discussion is "Post-War Problems for the Quantity Surveyor," and will be introduced by Mr. Alfred Harris, D.S.O., F.S.I. Representative architects, civil engineers, contractors and building operatives will, it is hoped, be present at the meeting and join in the discussion. Among the speakers will be Mr. T. P. Bennett, C.B.E., F.R.I.B.A.

A Town and Country Planning Booklet.

For the information of interested laymen, Mr. Maurice E. Taylor, A.M.T.P.I., A.R.I.B.A., West Monmouthshire County Planning Officer (County Hall, Newport, Mon.), has prepared a twelve-page booklet on the meaning and scope of town and country planning and the work involved in the preparation of planning schemes. It is an admirable short explanation in general terms of a complex and, to the layman, sometimes baffling subject.

A.A. Film Evening.

On Tuesday, March 14, there will be a "Film Evening," arranged at the Architectural Association by Mr. Paul Rotha, who will speak on instructional films. The films to be shown include "World of Plenty" and "Power for the Highlands," and will commence at 6 p.m. at 36, Bedford-square, W.C.1.

Research in Road Machinery.

A committee of the Road Research Board of the Department of Scientific and Industrial Research has been appointed "to survey the field for research on the use of machinery in road construction, and, if thought fit, to draw up a programme of research." The committee is constituted as follows: Major H. E. Aldington (chairman), Mr. W. Savage, Sir George Burt, Mr. R. M. Wynne Edwards, Mr. A. Floyd, Mr. W. Minty, Mr. W. P. Robinson. Director of Road Research: Mr. W. H. Glanville. Mr. G. Bird will act as secretary to the committee.

The Department has also arranged to resume and extend its researches on concrete roads as part of the programme of the Road Research Board. The new work, which will have as its general aim the improvement of the standard of construction in respect of durability of surface characteristics, will be undertaken in co-operation with the Cement and Concrete Association. Both the foregoing are initiated with the full support and co-operation of the Ministry of War Transport.

Professional Announcement.

Mr. Leonard Blausten, F.F.A.S., has opened an office at 52, Brook-street, Grosvenor-square, W.1 (tel.: Mayfair 8771), where he will be pleased to receive manufacturers' catalogues and circulars relating to post-war housing, etc.

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COMING EVENTS

Tuesday, March 14.

Architectural Association. Films Evening arranged by Paul Rotha. 36, Bedford-square, W.C.1. 6 p.m.

Housing Centre. Miss Sylvia Pollak on "Living and Planning." 13, Suffolk-street, S.W.1. 1.15 p.m.

Institution of Mechanical Engineers. Symposium of papers on "Contractors' Plant." At Civil Engineers, Great George-street, S.W.1.

Wednesday, March 15.

Chartered Surveyors' Institution (Quantity Surveyors' Committee). Discussion—opened by Mr. Alfred Harris—on "Post-War Problems for the Quantity Surveyor." 12, Great George-st., W.1. 4.30 p.m.

Thursday, March 16.

Town and Country Planning Association. Mr. L. H. Hardern on "Planning the Gas Industry." 1, Grosvenor-place, S.W.1. 12.45 p.m.

Town Planning Institute. Dr. Dudley Stamp on "Planning and Industry." Essex Hall, Essex-street, W.C.2. 2.30 p.m.

Saturday, March 18.

Town and Country Planning Association. Conference. Town Hall, Bournemouth. 11 a.m.

TOWN AND COUNTRY PLANNING

CORRESPONDENCE COURSE.

A correspondence course in Town and Country Planning is being prepared—at the request of the War Office (A.E.3)—by the School of Planning and Research for Regional Development. The course, which is for members of the Forces, is in three parts, each consisting of ten lessons:—1.—Background of Planning. 2.—Planning Factors. 3.—Planning Practice.

The course is suitable for the following classes of students:—

A. Those who have passed the final examination of the R.I.B.A., the Institution of Civil Engineers, the Institution of Municipal and County Engineers or the Chartered Surveyors' Institution. Students in this class who satisfy the Directorate of Studies of the School in each of the three courses will be eligible for admission to the special three months' completion course to be organised immediately after the war by the Town Planning Institute for ex-Service candidates.

B. Those who hold an educational qualification of matriculation standard and are members of professions allied to those mentioned under A. For such students these courses will be a suitable preparation for the intermediate examination of the Town Planning Institute.

C. Those who are interested in planning subjects, but who do not seek an examination qualification.

Applicants should apply to their Education Officer for the necessary enrolment forms, or if they write to the School of Planning and Research for Regional Development, 32, Gordon-square, London, W.C.1 (EUSton 2158), their names will be given to the War Office and the forms sent direct to them from there. The School will also be pleased to give any further information required.

From *The Builder* of 1844

Saturday, March 9, 1844. *Price* 3*d.*

Metropolitan Building Act: House of Lords.—The Earl of Lincoln said he rose for the purpose of bringing in a Bill for regulating the construction and use of buildings in the Metropolis and its neighbourhood. The House was aware that the present Act for regulating buildings was introduced in the reign of George the Third, about 70 years ago, and many of its details were, of course, inapplicable to the present condition of the Metropolis. He therefore proposed to repeal that Act. [Hear, hear.] . . . It was unnecessary for him to trouble the House with technical details, which would be disagreeable and unintelligible to the House. . . . All he felt necessary to state was that the Bill had been framed with the greatest care. . . . He should remark that in some cases great abuses had arisen from the appointment of incompetent persons to that office [of district surveyors]. He proposed to have district surveyors appointed by the magistrates, such surveyors not to be under 30 years of age, and not to be magistrates. . . . Leave was then given to bring in the Bill.

REHOUSING LIVERPOOL

THE CITY ARCHITECT'S REPORT.

A PRELIMINARY report of the City Architect and Director of Housing (Mr. L. H. Keay, O.B.E., F.R.I.B.A.) has been considered by Liverpool City Council on Wednesday, March 1. The decisions are given on page 196.

The Report is in three parts. Part 1 gives a brief survey of the housing activities of the city—(i) prior to the great war, (ii) during the inter-war period, and (iii) since the outbreak of the present war. An estimate is given of the immediate post-war shortage and of a long-term programme for the replacement of sub-standard houses by redevelopment under the Housing Act. Part 2 draws attention to many matters involving questions of policy upon which decisions will be necessary before any long-term programme of housing and rehousing can be drawn up. Particulars of the first year's building programme submitted to the Ministry of Health in March, 1943, are included. The desirability of recreating community units within the city to correct the ill-effects resulting from uncontrolled development is discussed. Estimates are made of the amount of land required for the essential components of such planned community units and the various methods of rehousing, and consequent densities are referred to. Part 3 gives particulars, with illustrations, of the various types of dwellings built in the inter-war period, and of suggested improvements. Sketch plans of new types of dwellings are included, and reference is made to district heating and the provision of lifts in blocks of flats. Comparative costs of parlour and non-parlour houses are given and their effect on rental. Reference is made to standardisation and prefabrication.

Part 1 discloses that between 1916 and 1939, 6,351 flats and 32,833 houses were built—a formidable total. In 1939 there were 202,000 separate dwellings available for occupation, a number reduced through war damage and other causes to approximately 193,000. Rapid deterioration in the older dwellings is occurring through lack of maintenance repairs, it is pointed out. The immediate housing shortage is estimated at about 32,000 houses. This number does not take into account the number of houses necessary to replace insanitary and worn-out properties which will have to be demolished in compliance with orders under the Housing Act.

The following Table gives an estimate for a 25-year housing programme:—

Present shortage	32,00
Replacement of dwellings already scheduled for demolition under the Housing Act	19,000
Dwellings likely to be included in orders made under the Housing Act or to be demolished for other reasons	40,000
	91,000

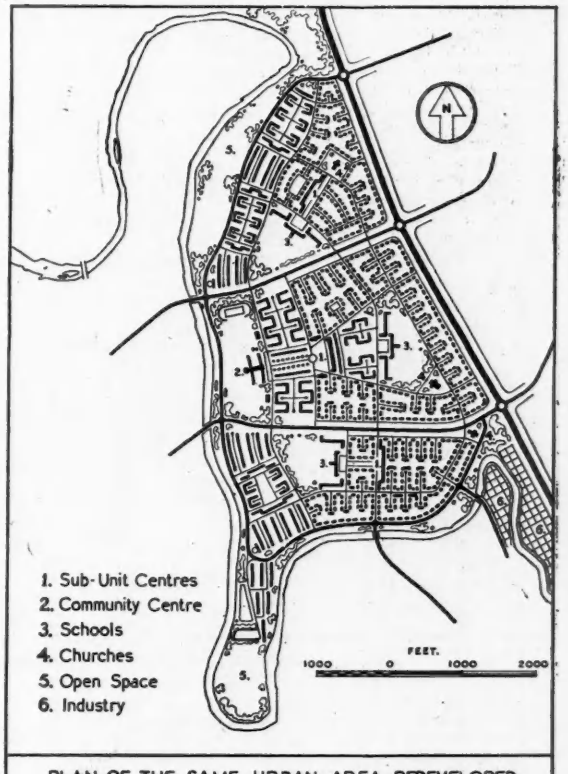
DECISIONS ON LOCAL AND NATIONAL POLICY.

Part 2 stresses that before the preparation of a programme in detail, decisions will have to be taken upon the methods by which the problems can best be solved, and in reaching these decisions both national and local policy will be involved. National policy, if it is to be successful, must represent the greatest common measure of the satisfaction of local needs, and it is therefore desirable that broad decisions upon local policy should be reached as early as possible so that they may be more available to the Government. It is obvious that Liverpool's housing problem cannot be solved merely by the development of additional dormitory estates on the outskirts of the city. If before the war it was deemed necessary to seek powers for the redevelopment of not less than 333 acres of the older residential areas, then in the post-war the redevelopment of housing districts of a far greater area will be necessary. Where peripheral development is necessary no new decisions on policy are likely to be required for the precedent established at Speke of a protected self-contained community unit.

If redevelopment schemes are to be planned upon the basis of re-establishing community units (continues the

DIAGRAMMATIC PLAN OF A TYPICAL URBAN AREA HAVING A POPULATION OF APPROXIMATELY 30,000 & SUITABLE FOR REDEVELOPMENT AS A COMPLETE COMMUNITY UNIT

FIG. 1.



PLAN OF THE SAME URBAN AREA REDEVELOPED AS A COMMUNITY UNIT COMPRISING THREE SUB-UNITS OF APPROXIMATELY 10,000 POPULATION EACH
Standards of areas applied are those for Inner Zone in Table 3.

FIG. 2.

Report) it may be well to define the essential features of these units. It is generally accepted that units should be planned for populations of 5,000 to 10,000 persons. The Report refers to these units as sub-units because they are not sufficiently large in themselves to warrant all the amenities necessary for a community being included within them, and should therefore be grouped together to form aggregations of population ranging from 15,000 to 50,000 persons. Diagrammatic plans of typical urban areas as existing and as redeveloped as a community unit are shown in Figs. 1 and 2. On the question of densities it was the inter-war period's practice to develop new estates at a net density of 12 houses to the acre, and where flats were erected in the inner areas at densities varying between 40 and 60 to the acre. The average number of persons accommodated per house in the outer areas has varied between 3.6 and 4.06. The Report suggests that for the purpose of calculating the number of persons to be accommodated in new developments in the outer area a net figure of 34 persons to the acre should be taken. The following table gives details of various densities for both cottage and flat development and combinations of the two deemed suitable for consideration in connection with redevelopment schemes:—

Type of development.	Densities per acre.			
	Dwellings.	Population.		
		At 3.6 persons per dwelling.	At 3.8 persons per dwelling.	At 4.06 persons per dwelling.
1. Houses only	24	86	91	96
2. Houses and flats of 3 and 4 storeys	32	115	122	128
3. Flats—3 storeys	30	108	114	120
4. Flats—4 storeys	40	144	152	160
5. Flats—4 and 5 storeys	45	162	171	180
6. Flats—5 storeys	50	180	190	200
7. Flats—5 or 3, 5 and 8 storeys	60	216	228	240

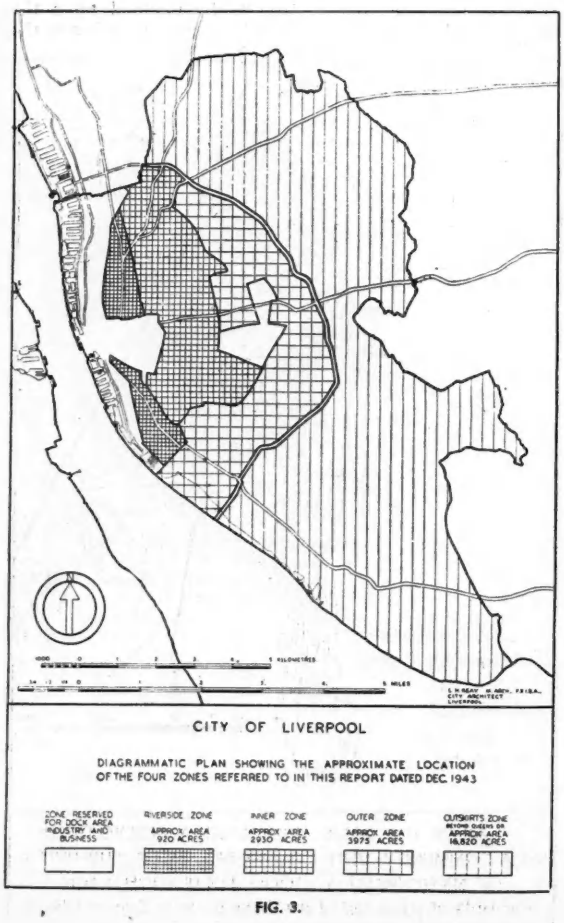

CITY OF LIVERPOOL
DIAGRAMMATIC PLAN SHOWING THE APPROXIMATE LOCATION OF THE FOUR ZONES REFERRED TO IN THIS REPORT DATED DEC. 1943
ZONE RESERVED FOR DOCK AREA INDUSTRY AND BUSINESS
RIVERSIDE ZONE APPROX. AREA 920 ACRES
INNER ZONE APPROX. AREA 2930 ACRES
OUTER ZONE APPROX. AREA 3975 ACRES
OUTSKIRTS ZONE BEYOND QUEENS DR APPROX. AREA 16,820 ACRES

FIG. 3.

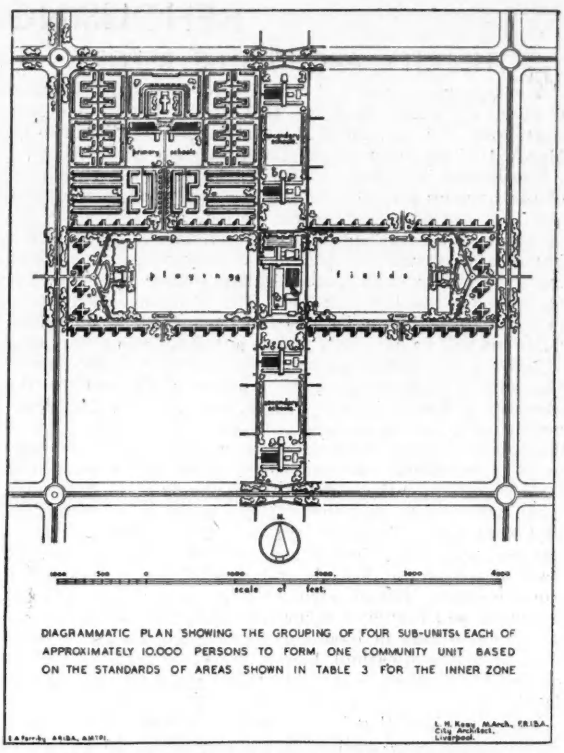

primary schools
playing fields
scale of feet.
DIAGRAMMATIC PLAN SHOWING THE GROUPING OF FOUR SUB-UNITS EACH OF APPROXIMATELY 10,000 PERSONS TO FORM ONE COMMUNITY UNIT BASED ON THE STANDARDS OF AREAS SHOWN IN TABLE 3 FOR THE INNER ZONE

FIG. 4.—HERE IS SHOWN IN DIAGRAMMATIC FORM THE DEVELOPMENT OF 144 ACRES (LESS 3 ACRES FOR LOCAL INDUSTRIES) IN ACCORDANCE WITH THE STANDARDS OF DENSITY AND LAND AREAS SET OUT IN THE REPORT AS APPLICABLE TO THE INNER HOUSING ZONE. THE OPENNESS OF THIS DEVELOPMENT COMPARED WITH THE CONDITIONS NOW EXISTING IN THE INNER ZONE WILL BE AT ONCE APPARENT WHETHER ASSESSED BY A COMPARISON WITH THE PLAN OF ANY EXISTING PART OF THE ZONE, OR FROM INTIMATE KNOWLEDGE OF IT.

The Report suggests that consideration should be given to the varying conditions obtaining in four districts of the City of Liverpool, referred to as zones: (1) the Riverside zone; (2) the Inner zone; (3) the Outer zone; and (4) the Outskirts. The approximate location of these zones is shown in Fig. 3, while in Fig. 4 is shown in diagrammatic form the development of 144 acres (less three acres for local industries) suggested for the Inner zone (2). The openness of this development compared with the conditions now existing in the Inner zone will be at once apparent.

HOUSING IN THE POST-WAR PERIOD.

The work to be undertaken in the post-war period may be conveniently divided into three distinct sections: (a) the repair of all occupied and occupiable dwellings not likely to be included in any immediate redevelopment scheme, and reinstatement of properties not likely to be affected during the period of the post-war housing programme; (b) the building of dwellings to overcome the known shortage; and (c) the more gradual replacement of those sub-standard dwellings which it is not possible to render habitable in accordance with the accepted standards of to-day. An interesting table (not reproduced) shows that the estimates for the replacement of sub-standard houses by redevelopment envisages 513,975 persons being rehoused in place of 600,000—a "spill-over" of 86,025. In another table, estimated building to overcome shortage by new development is put at 16,000 houses by the Corporation and 6,600 houses by private enterprise on lands in the outskirts which are or may be available during the next 25 years.

The City Architect realises (the Report states) that the Liverpool Housing Committee will desire to fix as short a period as possible for the completion of a sufficient number of dwellings to overcome the immediate post-war shortage. Still assuming that this will require 32,000 dwellings and that the Committee may desire to overcome this in four years, it would be necessary to erect an annual average of 8,000. "As the first year will necessarily be one of preparation and devotion to the earlier stages of construction, very few dwellings could be completed in it, and it would

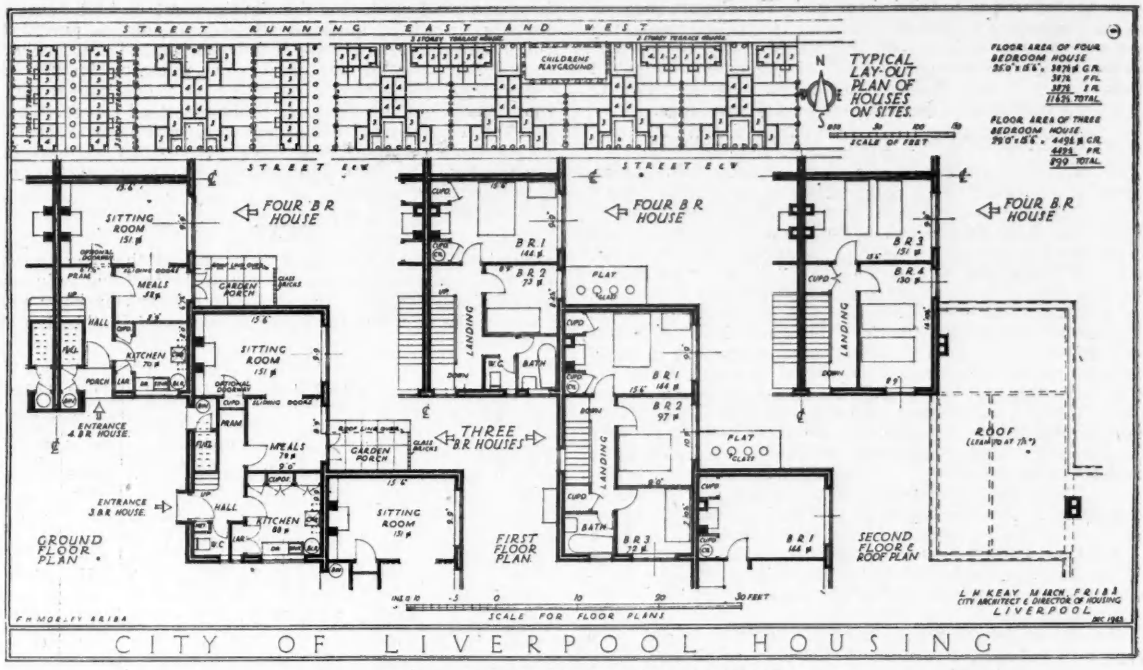

STREET RUNNING EAST AND WEST
TYPICAL LAY-OUT PLAN OF HOUSES ON SITES.
FOUR B.R HOUSE
THREE B.R HOUSES
GROUND FLOOR PLAN.
FIRST FLOOR PLAN.
SECOND FLOOR & ROOF PLAN
ROOF (LEANED AT 7½°)
SCALE FOR FLOOR PLANS
L. H. KEAY, M.ARCH., F.R.I.B.A. CITY ARCHITECT & DIRECTOR OF HOUSING LIVERPOOL
F. H. MORLEY, A.R.I.B.A.
CITY OF LIVERPOOL HOUSING

FIG. 5.—DESIGNS FOR NARROW-FRONTAGE HOUSES *EN ECHELON*.

therefore be necessary to establish a rate of production considerably in excess of 8,000 during the remaining three years. As the average number of dwellings erected in the city, both by private enterprise and the local authority, for the 20 years 1919-1939 was 3,239, and the maximum in any one year was 7,295, the Committee will realise that there will be very little likelihood of completing 32,000 dwellings in four years by traditional methods, despite even a very considerable augmentation of the building industry. The City Architect and Director of Housing deems it wiser to allow five years for the liquidation of the immediate post-war shortage, and the Committee will have to consider whether they will be prepared to resort to temporary or some alternative forms of construction which will employ operatives and utilise materials not hitherto associated with house building. . . . The City Architect is of the opinion that . . . it is unlikely that more than 5,000 dwellings will be erected annually, and that only after the first five years from the commencement of operations."

The Report contains a suggested programme for a 22-year period which shows 10,500 permanent dwellings and 21,500 temporary houses erected within five years; 50,000 permanent dwellings (at an even rate of 5,000 annually) over the next 10 years; and 30,500 during the next seven years. During the last period the temporary houses would be removed until at the end of 22 years there would be a total of 91,000 dwellings. "The City Architect is keeping in close touch with all developments likely to make possible the quicker, better or cheaper production of dwellings. . . . At the moment . . . he is unable to advise the Committee that there is any better method of house building which has stood the tests of time and occupation than the traditional brick and timber carcassed house. . . . He is anxious lest the urgency of the problem of finding immediate accommodation for the greatest number of persons may be made the occasion again for the erection of dwellings by untried methods. . . . The Committee will doubtless desire that, after this war, in Liverpool, at all events, there will be no

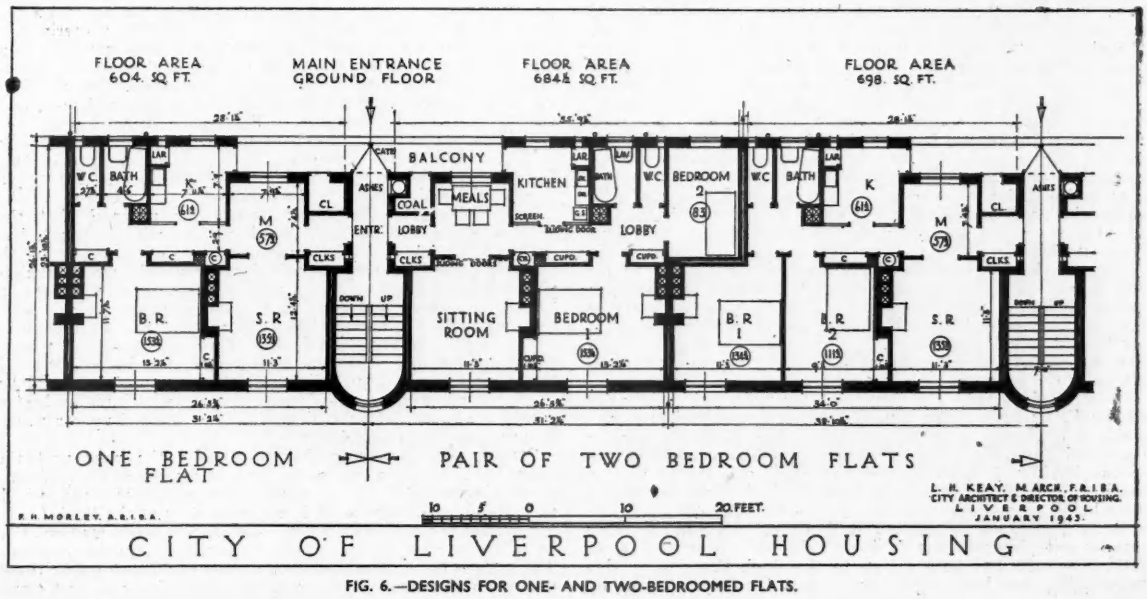

FLOOR AREA 604. SQ FT.
MAIN ENTRANCE GROUND FLOOR
FLOOR AREA 684½ SQ FT.
FLOOR AREA 698. SQ FT.
BALCONY
KITCHEN
BEDROOM 2
SITTING ROOM
BEDROOM 1
ONE BEDROOM FLAT
PAIR OF TWO BEDROOM FLATS
L. H. KEAY, M.ARCH., F.R.I.B.A. CITY ARCHITECT & DIRECTOR OF HOUSING. LIVERPOOL JANUARY 1943.
F. H. MORLEY, A.R.I.B.A.
CITY OF LIVERPOOL HOUSING

FIG. 6.—DESIGNS FOR ONE- AND TWO-BEDROOMED FLATS.

more graveyards of untried theories." The Report suggests as an alternative to new dwellings in temporary forms, the use of two estates belonging to the Ministry of Aircraft Production, comprising a total of 1,027 semi-detached bungalows. It may be necessary to give consideration to proposals for erecting portable temporary dwellings.

CONSTRUCTION: TYPES OF DWELLINGS.

In Part 3 of the Report are given constructional notes, types of dwellings, etc., followed by a number of plans which have been developed. Two examples are given in Figs. 5 and 6. In general, three types of dwellings have hitherto been erected by the Committee—the parlour house, the non-parlour house and the flat. "A factor governing the planning of various types of both flats and houses has been the installation of one coal fire in the living room, performing the three functions of space heating, water heating and cooking. This was of great advantage to many tenants, particularly during the period of financial depression following the year 1929." In discussing the standard plans for post-war houses, the City Architect shows that the standard post-war plan for the three-bedroomed non-parlour house has a total floor area of 893 sq. ft., and the parlour house 1,000 sq. ft, both exclusive of outside coal-house. These show increases of about 109 and 50 sq. ft. respectively over the pre-war standard plans adopted at Speke. "This increase in living space is, in the opinion of the City Architect, of far greater importance than many of the improvements in equipment which have been suggested . . . equipment of the type favoured by the tenant can always be added subsequently."

The Report suggests new types of houses and flats. One type is the "narrow frontage" house *en echelon* (Fig. 5), on a 16-ft. frontage, to be erected at densities of up to 24 to the net acre. These would be three storeys in height. As for flats, certain modifications and improvements in the standard plans will be necessary. "Before detailed plans can be submitted, however, decisions are necessary as to the number of storeys, the provision of lifts, the possibilities of district heating, and the consideration of types not hitherto erected by the Committee. . . . If it is decided to test the use of automatic lifts—and there is evidence of their satisfactory and economical working at Leeds—there would appear to be no reason to limit the height of some of the flats to five storeys." As for district heating, the Report states that as yet there are no grounds for assuming it would have any advantages in the case of low-density suburban development where each house has approximately the same land unit. In the development of high-density districts, in which much of the accommodation provided would take the form of flats, it is recommended that further investigation should be made. "A necessary feature of district heating is the introduction of a continuous pipe duct throughout the blocks of buildings to be served. This duct could be conveniently designed to enclose an essential component of another innovation successfully adopted in the Quarry Hill flats at Leeds—the Garchey system of domestic refuse disposal."

COST.

On the question of cost, it is suggested that the target at which the Housing Committee and the building industry should aim is that of an increase of 25 per cent. over pre-war prices. The effect at Liverpool is expressed in the Report as a Table.

Type of house.	Floor area in sup.ft.	Prices obtaining in 1939.		Prices obtaining in 1939 plus 25 per cent		Prices obtaining in 1939 plus 30 per cent.	
		Capital cost (buildings).	Weekly net rent.	Capital cost (buildings).	Weekly net rent.	Capital cost (buildings).	Weekly net rent.
PRE-WAR PERIOD (Speke)—		£	s. d.	£	s. d.	£	s. d.
(i) Parlour house	950	460	11 7	575	13 10	598	14 2
(ii) Non-parlour house	784	393	10 7	491	12 6	511	12 10
POST-WAR PERIOD.							
(i) Parlour house	1,000	484	12 0	605	14 3	629	14 9
(ii) Non-parlour house	893	448	11 6	560	13 7	582	14 0

NOTE.—The above table includes in each case the cost of the site and road and sewer works, and the weekly rents shown are net, exclusive of rates. Interest is taken throughout at 3½ per cent.

THE CITY COUNCIL'S DECISIONS.

Liverpool City Council on March 1 decided that in view of the urgent demand for housing accommodation the City Architect and Director of Housing should report further on temporary buildings, alternative forms of construction, and prefabrication in the light of investigations now being made, and particularly on costs. The Council approved in principle the desirability of erecting self-contained houses in preference to flats where possible, the limitation of the height of flats to three storeys, and the carrying out of a housing survey to ascertain the number and particulars of families needing accommodation and the number and types of new dwellings which the disclosed demand would make necessary.

A CITY OF LONDON SKETCH PLAN

BY KENNETH J. LINDY, F.I.A.A., AND B. A. P. WINTON LEWIS, A.R.I.B.A.

A SCHEME for the replanning of the City of London is now on exhibition at the Incorporated Association of Architects and Surveyors. It is no more, at this stage, than a sketch proposal. The plan deals in broad principles. While certain concrete proposals are made concerning major issues and various aspects of civic design, both from the town planning and æsthetic angles, those aspects of the matter which call for intensive detailed survey or specialised technical research are dealt with in outline only. Thus the precise increases in height of buildings throughout the City necessary not only to compensate for increased open space but also to increase effective floor space cannot be precisely calculated without exhaustive survey and only the principles which will undoubtedly achieve such results are laid down. No attempt at exact height zoning is made. Similarly various proposals in relation to railway development are made tentatively. In the case of pictorial presentation it has been possible only to pick out special examples of ancient monuments and those modern buildings which relate to specific features (such as the Bank of England and Royal Exchange Group) and all other areas are treated as building masses. It must not, therefore, be taken that any individual buildings not pictorially depicted are automatically condemned.

CIVIC REPLANNING.—The City has three main foci. There are St. Paul's Cathedral; the Mansion House, Royal Exchange, and Bank of England group; and the Guildhall, and the authors are convinced that the basis of all civic and practical planning lies in the linking of these features and the creation of a regular cruciform core to the whole plan. St. Paul's has been cleared of close buildings and surrounded with a churchyard commensurate with its importance and enclosed within a colonnade in the Wren manner sweeping round it in a vast ellipse. From this great feature an axis has been driven to the Bank Crossing. This latter group has been regularised into a fan-shaped layout by the somewhat drastic treatment of the Globe Insurance building which virtually disappears, and a new side elevation of Lloyds Bank completes the radial group of façades. The westerly end of this axis is a dual carriageway with a central garden. The sites on either side appear to be an excellent position for rehabilitation of the halls of the Livery Companies. More or less bisecting this axis is a fully widened development of King-street and Queen-street commencing at Southwark Bridge, which has been dignified as the gateway to the City by the introduction of "Guildhall Steps" on either side and the erection of two dominant warehouse pylons (practical memorials to the City's river trade) and running to the Guildhall.

It is here that the authors make the proposal that the old hall should be restored (which no one will question), but in place of the miscellaneous collection of growths which formerly housed the corporation's departments the whole administration shall be rehoused in a monumental structure rising to a height of between 400 and 500 ft., and having enshrined as a central feature the ancient hall fully restored to its old beauty.

The authors have given very careful thought to the treatment of the river bank. After due deliberation they have abandoned the somewhat prevalent belief that the embankment should be continued eastwards as this would destroy wharfage—or highly complicate its efficient planning—and have decided upon a reconstruction on its present lines.

STREET AND TRANSPORT PLANNING.—For the most part the street plan consists of the widening and sometimes straightening of existing streets. The greatest evil is undoubtedly that which finds its ultimate expression in the congestion at the Bank Crossing, and it is not considered that small-scale traffic manipulation by rotary or other systems at this focus will relieve the condition. The authors have, therefore, wholly removed all such public transport from the area. By opening up alternative east-west traffic

routes of adequate size and by by-passing the Bank Crossing on its easterly side by a ring road (mostly from existing streets and open spaces, but definitely through the centre of the Stock Exchange!) provision is made for a comparatively regular and evenly distributed grid of thoroughfares for public transport, splitting the City into reasonably walking areas which are in addition served by underground stations. At east and west ring road has been developed which should further relieve pressure on the central arteries with the assistance of fully developed north to south routes either end of the City. Concerning the railway systems, the authors, recognising the specialised technical problems involved, are tentative and broad in their suggestions except upon one point. They are most adamant upon the necessity for all main line stations where now above road level being lowered beneath it and that all such transport be electrified for a considerable distance out of London. Aviation must not be forgotten. There seems, however, to be nothing against the use of passenger gyroplanes (accuracy of landing of which is far greater) on such flat roofs or special platforms as may be desirable. The authors suggest a position over Liverpool Street Station.

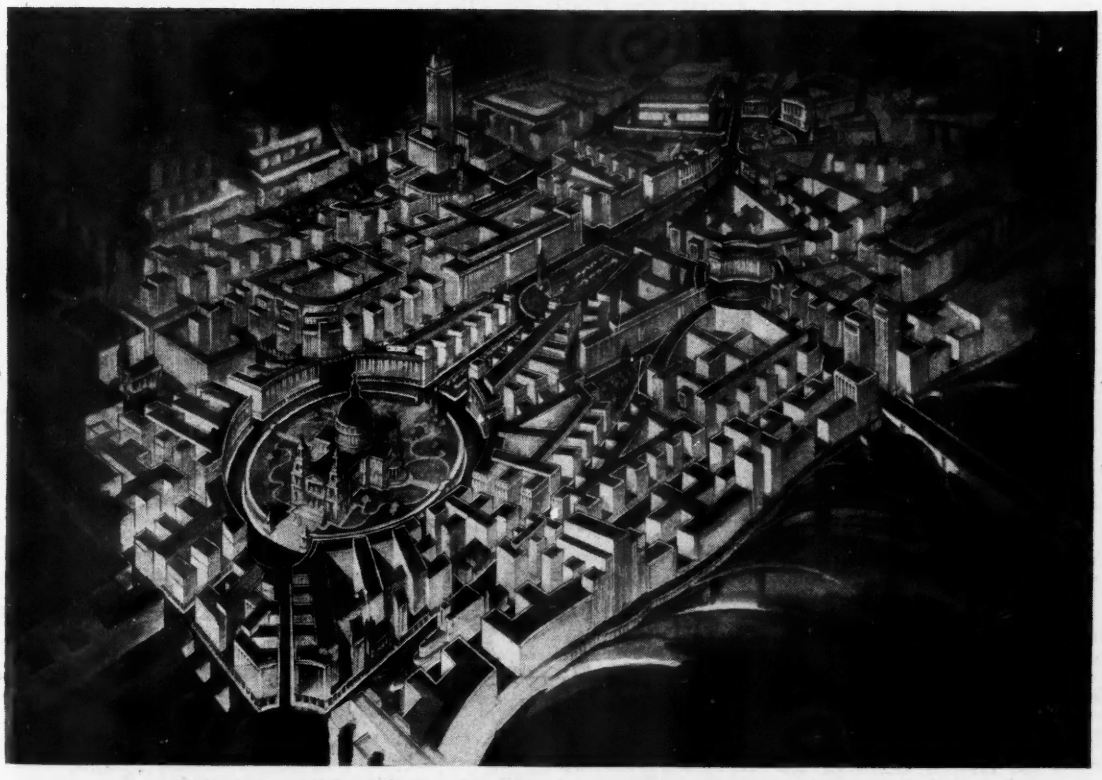
ARCHITECTURAL TREATMENT.—There is no suggestion that the buildings of the City should be standardised or in any way made monotonous. Internal areas as now known must vanish and the basic principle of planning in future be the spinal system.

SERVICES.—It will be realised that the general increases in height will involve considerable revisions in connection with various services. It is recommended that adequate ducts to house all mains be included in the design of new and reconstructed streets.

COMPENSATION BETTERMENT AND OTHER PROBLEMS.—The authors, being perturbed at the difficulties which inevitably must arise when dealing with hundreds of small freeholds, feel the acquisition of all freeholds by a company under City charter and its operation as a universal ground landlord in complete co-operation with the town planning authorities would vastly simplify the ultimate redevelopment.

EXISTING PLAN OF THE CITY AREA.

REDESIGNED PLAN OF THE CITY AREA.



BIRD'S-EYE VIEW OF ST. PAUL'S AND BANK AREA AS REPLANNED.

OBITUARY

Edwin Paul Wheeler, F.R.I.B.A.

We regret to record the death, in his 70th year, of Mr. Edwin Paul Wheeler, F.R.I.B.A., from 1934-1939 Architect to the London County Council and Superintending Architect of Metropolitan Buildings.

Following the usual training in a London office and at the A.A., Mr. Wheeler entered the Architect's Department of the L.C.C. towards the end of last century. There he remained for the rest of his professional career—a period of more than 40 years. For about half that time he was associated with the constructional work of the department, particularly housing and schools. Among these early works, he was concerned with development of Millbank Estate near the Tate Gallery, which shows the influence of Norman Shaw upon the earlier work of the department. Wheeler's architectural leanings, indeed, favoured the English tradition, as might have been expected when one recalls the pleasure he found in old towns and villages and the countryside.

In the last war he served in France for some time, attaining the rank of captain, and upon return to the department was diverted from the constructional to the statutory work, thereby widening his experience. At later periods a controlling direction of both these main sides of the work fell to him. It was soon clear that apart from his architectural abilities he had considerable administrative gifts and a capacity for handling men and effectively directing large schemes of work. In the early 'thirties, upon retirement of the then occupant, he became second officer of the department, and succeeded to the headship in 1934. This office he held for a relatively short time until his retirement (for health reasons) early in 1939.

In his long period of service the size and scope of the department's work was considerably enlarged. In the necessary reorganisations he played his due part, and he particularly influenced the large housing and schools programmes through a long term of years, which gained much from his oversight. It was his constant aim that the efficiency and traditional high standard of quality in the department should be maintained and even improved. For this aim his administrative capacity and sound architectural judgment were of the greatest value. His integrity and high sense of duty could not be questioned, and his standard of values ruled out the meretricious and superficially spectacular. Cultured, well-read and socially pleasant, but without any desire to achieve popularity, he will be genuinely missed by the few who enjoyed his friendship.

He became an Associate R.I.B.A. in 1902 and a Fellow in 1928. In recent years he served on the R.I.B.A. Council. His recreations were reading, horse-riding and nature study—and he was a member of the Reform Club. For many years he suffered a severe physical handicap which reduced his activities, so that his sudden death could not be regarded as entirely unexpected.

James MacLaren Ross, M.C., A.R.I.B.A.

We regret to record the death of Mr. James MacLaren Ross, M.C., A.R.I.B.A., at the age of 82. After receiving his architectural education at Edinburgh School of Art and the Heriot-Watt College, Mr. Ross was articled to Messrs. McGibbon and Ross, of Edinburgh, following a period at the Architectural Association, when he won the A.A. Essay Prize (1900) and the School of Design Medal (1903). He also received an hon. mention in the R.I.B.A. Essay Prize (1909). After several years in Edinburgh he came south to London. His practice was largely domestic, his interests including furniture and garden design, and his buildings numbered among them a house at Grey Point, Vancouver; the House of the Order of Silence, Coldash, Berks (including gardens and farm buildings); 15, Palace-street, S.W.1; "Alderbourn House," Stoke Poges; a studio at Townshend-road, Regent's Park; and other houses at Winchester, Gerrards Cross, Godstone and Ventnor. He won the M.C. in the last war at the age of 54.

Sir William Nicholson.

The late Sir William Nicholson, who died at Ruthin Castle on February 29, aged 78, was the head of the third generation of the Yorkshire firm of builders of William Nicholson and Son. This was started in Leeds in 1822, when railways were spreading and banks were being built.

Sir William Nicholson was a strong opponent of the recommendation recently made to Lord Portal by the British Building Mission to the U.S.A. in favour of investigating the American system of tendering without independent bills of quantities. He used to relate how in the early days of Queen Victoria each builder had to take off his own quantities from the plans, and, when half a dozen men were trying to do this at the same time and from the same plan there was endless delay and confusion. He believed that the quantity surveyor was of great service to the industry.

Sir William was at Leeds Grammar School, and then started as an apprentice at the bench. He was still a minor when his father died, but soon proved to be a man with personal experience of the building industry and all its details, and fully capable of maintaining and expanding the family firm. He made time to undertake many other activities. These included the Presidency in 1906 and 1907 of the National Federation of Building Trades Employers, of which he was one of the original founders. In 1910 he twice stood as Conservative candidate for South Leeds, and in 1911 was unanimously elected Lord Mayor of Leeds. He was a member of the Central Executive of the National Service League under Lord Roberts. He was one of the old school of builders. Fortunately, he has left other members of the family to carry on the high traditions of one of the oldest building firms in this country.

A GIFT TO THE STATIONERS' COMPANY

WHEN the Lord Mayor was the guest of the Court of the Stationers' and Newspaper Makers' Company recently he was shown a gift of the Master which occupied a place on the table and housed the bell used to call the Court to order.

Made from timbers saved from the roof after its destruction in the raid which fired the Hall, in 1940, it is a frame which carries on the one side a picture of the Company's ancient barge and on the other the Barge Master's badge. The painting is by Mr. A. C. Fare, R.W.A., after E. W. Cooke's drawing of 1829, to which Mr. Fare has added Old Westminster and Lambeth Palace.

The Company's architects, Messrs. Henry Dawson and Son, L.R.I.B.A., designed the frame to represent two of the five king-post roof trusses of which drawings have been saved. A model of the ancient roof is thus represented.

The silver badge of the Barge Master rests on the "purlins" on one side of the "roof." On the other side is a representation of the Company's barge, which was manned by a crew of 20—the barge master, with badge on his breast, the helmsman and 18 oarsmen.

The Stationers' barge headed the Lord Mayor's procession by water to Westminster annually, and then went on to Lambeth Palace where the Patron of the Guild, the Archbishop of Canterbury, was ceremoniously visited.

On an "Order of Procession for the Barges," dated November 9, 1780, appear the words: "The Stationers' Barge is to lead the Van."

The life of a barge was about 30 years, and in 1829 the barge represented in the drawing was built for the Company. It was sold in 1850, and went to Oxford, where it remained for some time in use by one of the colleges. The Lord Mayor's procession by water was discontinued in 1856.

The wording on the plate on the base of the model, also made of oak from the roof, is as follows: "I was made of oak from Stationers' Hall roof (1671) as a model of two of the five trusses destroyed by enemy action (1940) to form a stand for the Barge Master's Badge (*Circa* 1700) and to commemorate the Mastership of Herbert Arthur Cox (1943)."

THE BARGE MASTER'S BADGE (On far side).

A GIFT TO THE STATIONERS' COMPANY.

CORRESPONDENCE

[Whilst we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Architectural Appreciation in Schools.

To the Editor of *The Builder*.

Sir,—I was much interested in the article in your issue of February 25 on the above subject.

It is being generally realised that the real education of the people in the appreciation of physical environment, including architecture, town and country planning, and the fine and industrial arts, must begin at home and be continued throughout school life—that every child should receive instruction in this subject from the cradle upwards as part of his education. For this reason the child, from the earliest period, should be brought up in well-designed surroundings, as it is his environment that first influences his ideas of colour and design. The matter, it is suggested, should not be dealt with as a separate subject, but be woven into the fabric of the school curriculum and form a background not only to the art classes but to others, such as history, geography and literature. That it can be dealt with in this way educationists and teachers agree.

In the past most lectures on the subject have treated it more from the historical than the appreciation standpoint and have been largely given to adults; also, they have not been systematic. The result, unfortunately, has been almost negligible, as is shown by the design of many buildings erected after the last war and their contents.

The Council for Education in Appreciation of Physical Environment arose out of the suggestion made some two years ago that good design should be taught in all schools by the existing staffs when competent to do so. The simplicity and practicability of this suggestion has been realised by educationists, and during the last 18 months a number of lecture courses for teachers on the subject on the lines advocated by the C.E.A.P.E. have been organised throughout the country, especially in the North, and it has been introduced into a number of schools. Whilst this is a matter which must be handled chiefly by educationists, architects and others interested in the subject can give valuable help by organising conferences of teachers to discuss the matter, assisting with lecture courses and in other ways. Some of the Allied Societies of the R.I.B.A., realising the importance of the project, have already formed special committees to deal with it. If all will do so and form the proposed local panels of lecturers on the appreciation of architecture, town and country planning, and the industrial arts, it will be very helpful, as there is a growing demand for such lectures, not only from education authorities but from Army directors of education and the W.E.A., etc. Few lecture courses have been arranged in the Greater London area, which contains about a fifth of the population of the country. If the R.I.B.A. will organise such courses throughout this area it will be of the greatest value.

If everyone interested will give all the help they can in the matter in a comparatively short time, judging by the progress already made, the subject will be a normal feature of the curriculum of many schools.

Reading. C. B. Willcocks.

Are Housing Cost Fundamentals Wrong?

To the Editor of *The Builder*.

Sir,—On page 134 of your issue of February 18 you published an article [by Mr. Lewis Silkin, M.P.] on reducing costs. My impression is that an uninformed person reading this or similar articles which may appear in the daily Press would think there is a chance of low-cost post-war houses. Speaking as a builder of domestic property with a turnover of more than £10,000 per week after the last war, the writer considers the average cost of post-war houses will be double the pre-war cost.

If the public pin faith to certain statements in the article not properly based on fact, and are later disillusioned, the result may be harmful to the national interest. There is much that is good in the article, but the following comment is offered, hoping it will give a more realistic view of the situation.

In a paragraph in the article headed "Cost must be brought down," the statement is made: "Somehow the cost of building a house must be brought down to a figure equal to, or if possible even below, that of pre-war." On page 143 of your same issue you report the address of the President of the Building Industries National Council, stating current wages are up 35 per cent. plus 2 per cent. in regard to lost time guarantee, and further that "Labour is to-day producing something between one-third and one-half of what it did in 1939." Therefore, if current wages compared with 1939 are 137 per cent., with production one-third, the builder is in effect paying just over four times as much for each hour's work. (At this point we must refer back to the paragraph "Labour costs" on your page 135, which states: "In pre-war days, perhaps understandably, there were certain restrictions on the amount of output." Note.—The building trade would not agree, and our own practical experience at the time as builders confirms no pre-war restriction of output.)

The writer thinks one of the main factors which have created the present position is the "cost-plus" system, which applies to most war-time work. When the builder is called upon to rectify this position he will find himself confronted with a shortage of men for the volume of work in hand, and will call upon them for extra production.

The experience at this point after the last war is that the workmen demanded and received considerably better wages. Such wages were paid to a large percentage of men who had partly forgotten or never had the advantage of long training in the building trade, and had to be brought up to pre-war production standard by the nucleus of "old hands," and consequently a considerable time elapsed before this "standard" was again reached.

No individual or authority can get "better than pre-war production" unless the men are willing to give it, and they will not be willing unless wages are increased with an eye on the Report of the recent Government Mission to America, which showed American : British wages at 350 : 100. Therefore, "better than pre-war production" depends on a wage increase, and although this better production would more quickly alleviate the housing shortage, it will be unlikely to reduce the average cost of a house to less than double pre-war.

It is suggested that the problem affects between six and seven million to be employed in the building and allied trades, and thus closely affects the country's post-war general economic progress. It would be a short-sighted policy to attempt to correct a bad situation by a series of gradual wage increases and by subsidies. It would be better to take a long view and arrive at the eventual result straight away. Building operatives should be paid wages out of which they could afford to pay the economic rent of the houses they build, and using this as a basis the cost of living should be set at the necessary higher level for the whole community, with wage rates for other industries adjusted accordingly.

Another important aspect appears in the "materials" paragraph of the article on page 134, which concerns how far it will be necessary to use substitute materials, particularly timber. It is difficult to think of any substitute so adaptable and speedy in use as timber for roofs, floors, etc., and the article appears to pre-suppose timber shortage. If timber is given priority for import with a post-war world shipping tonnage much greater than 1939, the shortage, if any, could be reduced to a minimum. One bold plan to alleviate an expected timber shortage seems more likely to give results which will speed up permanent housing than to repeat the performance of trying to find substitutes which occurred after the last war, and faded out immediately normal materials were available.

Taking the paragraph "Management," we find the statement, "Very few even of the larger firms worked to time and progress schedule." No large firm could operate long without having their own particular system of keeping costs within estimate, or they would soon be out of business, and if the system was not 100 per cent. the tendency would be to give inferior work to keep costs within estimate. You do not reduce cost by a "progress schedule," but only govern it, and the real purpose is to get maximum value into the building for the cost. The system we used twelve years ago gave this result: every item of the building was numbered 1 to 888 (like motor-car parts), including each scaffold member, which was reused in same routine of positions for each house. A five-day working week operated, if fine, with two days week-end holiday, for which the men were paid a full week's wages. If wet, the lost time was recovered by working on Saturday to the number of lost hours. Men were also paid half-time for standing by when "rained off" the job.

Having explained that "progress schedules" are not for reducing cost, we return to the factors mentioned in your article "which go to make up the cost of a house—*i.e.*, land, rate of interest, cost of material, method of production, the quality of management, and labour costs." The writer considers the most important factor is omitted, if the target is to build a large number of small houses at minimum cost. That is, the plan should be designed to the estimate and not the estimate to the plan, as at present. When our own plans had been prepared to satisfaction in meeting the specified requirements, we always found our greatest saving was by redesigning the plan and rearranging the particular method of building to be employed, until the necessary cut in estimate was possible. A suggestion to this effect to builders when tendering might produce surprising results if coupled with an assurance of exclusive rights to any plan so adopted. It would cause each builder to specialise on one type of house in which his whole staff would soon become particularly expert in executing best work at "rock-bottom" cost.

Dartford, Kent. W. J. Brise.

Birmingham Civic Centre.

To the Editor of *The Builder*.

Sir,—The scheme for the layout of the Birmingham Civic Centre, published in *The Builder* of February 25, has naturally raised considerable local interest and some criticism.

To those familiar with the geography of the area, there appear to be certain site difficulties not best suited to the proposed plan. There is a considerable drop in levels on the north perimeter of the square

which will embarrass the architect in the planning of the approaches, entrances and exits to the City Hall, shown in the central position, which, with the two smaller halls, will seat 4,200 people.

The photograph of the model shows how the two flanking office buildings cut off the view of the main elevations of the public buildings. Moreover, strung out end to end as they are produces a façade without expressing the purpose of each building.

It has been pointed out in the local Press that to plan and lay out the garden plots before the purpose and requirements of the surrounding buildings have been decided upon is putting the cart before the horse. If it is necessary to make some preparation for the layout, then the sites for future public buildings should be allocated in such a manner as to leave untrammelled the design of architects who will be called upon to plan them.

The enclosed alternative layout, while keeping the essential features of the approved plan, would leave open sites for future building, and especially would it give a site to the City Hall free from difficulties of levels. It may not be the entirely correct solution, but it would allow each building to express itself on an independent site.

HOLLAND W. HOBBISS.

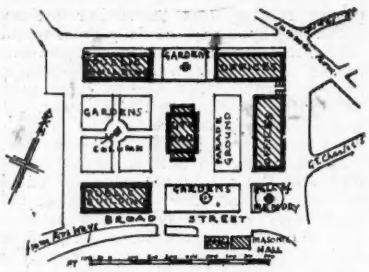
Birmingham, 3.

Building Methods in U.S.A. Report.

TO THE EDITOR OF *The Builder*.

SIR,—The British Building Mission, in its recent Report on Methods of Building in the U.S.A., has recommended that an investigation be instituted into, among other matters, the inviting of tenders without bills of quantities for work to be carried out in this country in the post-war years. This recommendation is based on the American practice, and the Report goes no farther than to state that such practice "has certain advantages and disadvantages which require to be carefully weighed up." Nevertheless, the alleged advantages are set out in detail and are counterbalanced only by the recognition of the semi-judicial position of the British quantity surveyor. From this and from the opening sentence of paragraph 84 of the Report (in which it is suggested that "improved methods of estimating" will be one factor in reducing the cost of building through increased speed) one is led to believe that the Mission, in fact, favours the American system of tendering.

One advantage claimed by the Mission for American practice is that not supplying quantities to tendering contractors necessitates the preparation of fully detailed and finalised drawings from which the contractors can prepare their own quantities. Admittedly, it is highly desirable to have these detailed drawings in existence prior to starting operations on the site, if only for organising and expediting the work, but it does not follow that it is a good thing that half a dozen or more firms of contractors, instead of one independent surveyor, should be preparing quantities, with the result that the labours of all except the successful tenderer are wasted and a charge on the building public. A further advantage of having the complete drawings in hand would be that the quantity surveyor could present a bill of quantities which would need very little adjustment to serve as the final account. The quantity surveyor members of the Chartered Surveyors' Institution have for long past at their periodic meetings bemoaned the uneconomic and retarding effect, both on their work and that of the contractor, of hastily and ill-prepared drawings prior to



A LAYOUT FOR BIRMINGHAM CIVIC CENTRE.
(See Mr. Holland Hobbiss's letter).

the commencement of the job. In this connection, however, it is difficult to understand how "the time taken for the preparation of drawings and tenders (including quantities) is less than under our system." The saving of time can lie only, one presumes, in the quantities stage. This is not to say that fully detailed and settled drawings do not save time in the long run; the preparation of a bill of quantities can be short-circuited by making a schedule of quantities and eventually remeasuring the whole job on that schedule, if such a course is vitally necessary, as has been done in very many war-time contracts. In war, the erection of the building in the shortest possible time is the vital consideration; the measuring and settlement of the account have to dally along behind as a result of adopting a schedule in the first place. In peace, one has to define what is meant by the speed of building. If by that term is meant the preparation of the tender, the erection of the building, *and the settlement of the account*, then the schedule contract is probably more ponderous and involves a greater expenditure of time than the lump-sum contract based on a bill of quantities, save always that the latter is prepared from full and conclusive drawings.

It seems that the Americans contend that since the contractor in the U.S.A. is obliged to take off his own quantities his estimate is more fully considered and, therefore, more realistic. Against this it may be asserted that the rougher the quantities the greater is the element of guesswork contained in the unit prices, until the final tender figure is far from realistic, especially if several competitors are all adopting their own peculiar methods of measurement.

The Mission submits that consideration should be given to a case where the taking-off by an American contractor was compressed into one-fourth of the number of items taken-off in this country for the same building. The writer had personal contact with a case in Britain a few years back, where the contractor reduced his taking-off on a large scheme to one item, viz.: "x feet cube." In due course, he rendered his final account 50 per cent. in excess of the tender figure, and litigation ensued. One realises that the comprehensive American drawings and specification at the inception of a scheme would no doubt tend to alleviate that state of affairs, but a meagre bill of quantities containing omnibus items would not avoid a "fat" tender to cover all the guesswork involved in unit pricing.

In paragraph 49 of their Report, the Mission states that "the British method of supplying quantities involves remeasurement on completion for the adjustment of accounts." This is not so. In most pre-war contracts the British quantity surveyor had no authority to remeasure completely without express sanction. If he did so, it was because the original drawings so little represented the final building that remeasurement was more efficient than dealing with the account on a variation basis. In other words, the more nearly were the original drawings and specifications prepared with American thoroughness, the less the time expended in measuring variations for final account purposes and the sooner did the contractor obtain settlement of his account.

The American Constitution is written and somewhat inflexible. The American building procedure is also "written" (laudably so, by complete drawings and specification in the early stages), and is likewise inflexible so far as the client is concerned. The British Constitution is unwritten and very flexible, as is British building contract procedure. On the whole, the American system of hard-and-fast designing, *as distinct from tendering*, is the better and certainly the more economical. But one can visualise exceptional cases where to expect the client or architect not to change his mind would be unreasonable and retrogressive.

I submit, Sir, that in their thorough preparation of drawings and specification before the commencement of a job the Americans are ahead of common practice in this country before the war, but that in their method of preparing tenders and in their technical accountancy in connection with building work they are only at a point where we stood 100 years ago. I feel that in the future the independent quantity surveyor will be a recognised member of the American building and civil engineering industries.

A. D. TISDALL, P.A.S.I.,
Chartered Quantity Surveyor.

London, W.C.1.

TO THE EDITOR OF *The Builder*.

SIR,—With reference to Mr. C. R. Fenn's letter in your last issue, some years ago, in the case of a very large building in London, some 8 or 9 storeys high, after the erection of the steel the process of facing the building went on at the sixth floor while the ground floor and upwards was being erected. For speed the job was certainly one of the quickest I have supervised, but much depends on design to carry out this process and on the mode of scaffolding.

G. W. HARRIS, I.C.W.A.

Management in the Building Industry.

TO THE EDITOR OF *The Builder*.

SIR,—Your correspondent "C. G.," in your issue of February 25, rightly calls attention to the need for a greater study of management in the building industry, but his suggestions, particularly those in No. 3 on his list, seem to convey the idea that management is something special to each industry, and that an industry should have its own books on management. This would lead to a veritable spate of such publications and confusion of thought on a matter which is fundamental and relatively clear.

Management does not vary greatly from one industry to another, although one or two of its technical functions, such as production and distribution, call for different treatment in their application. The general principles of management can therefore be taught as a fundamental subject common to all industry or, and better, as a subject based on a foundation provided by training in one or more of the technical functions. In other words, efficient management is attained through selected individuals with the right personal attributes whose professional training and specialised executive experience is supplemented by training in the principles and technique of management.

In regard to the co-operation of this Institute which "C. G." suggests, we have certain awards for papers on management subjects, and our fourteen branches throughout the country and our Management Conferences in London afford opportunities for the regular exchange of views in this field. What is needed is the recognition by various industries of some common syllabus of management education, leaving it to lecturers in the various Technical Colleges in different parts of the country to give a bias towards the particular industrial requirements of the different areas.

H. N. MUNRO,
Joint Secretary, Institute of Industrial Administration.
Victoria, S.W.1.

"Claims" under War-Time Contracts.

TO THE EDITOR OF *The Builder*.

SIR,—I was much impressed with the talk given by Mr. T. P. Bennett at the R.I.B.A. and reported in *The Builder* of February 25.

One particular subject raised requires greater emphasis and wider publicity, particularly amongst reputable building contractors and probably amongst quantity surveyors also. The subject is "Claims." There are two categories of "Claims" constituting features of war-time contracts. The first, which we may call "contractual claims," comprise the perfectly legitimate claims normally allowed under the conditions of contract in respect of travelling time and expenses, lodging allowances, increases in wage rates, etc. The Government scheme regarding such contingencies is to request the contractor, when tendering, to "exclude" from his tender all expenses normally incurred in satisfying the working rules of the industry concerned, following which the terms of the contract offer to reimburse the contractor for all such expenditure, "provided it is incurred in order to satisfy the written Industrial Working Rules." This system is quite sound, and contractors reading the tender documents are quite aware that they are to "include" in their tenders for all costs which are not specified as payable under the written "Industrial Rules."

Another category of "claims" is, however, becoming increasingly prevalent, "non-contractual claims." These are the claims which Mr. Bennett has in mind. They consist, usually, of fantastic sums of money built up on such pretexts as "disorganisation of work due to any reason," extensive "dayworks," anything, in fact, to build up the final account to its equivalent cost-plus level.

As Mr. Bennett said: "... the builder, before rendering his final account, may examine the prime costs of the contract, decide upon the profit which he thinks is reasonable, and make out a claim which will aim at securing the difference between the priced contract and the cost-plus profit which he hopes to secure."

These latter claims are made out with great technical skill and profound thought, and, although taken as a whole, their fictitious nature is apparent, it is often very difficult to attack each particular claim and prove it false.

The appalling fact is, however, that many of the claims appear to be receiving favourable consideration by the only clients offering large contracts at the present time—i.e., Government Departments. It is manifestly unfair to contractors tendering on a firm basis for a client to consider such claims at the conclusion of a contract, and I think that every effort should be made to expose this pernicious system. In Mr. Bennett's words: "This is an entirely unsound method of working, because the honest contractor who put in a sum of money in accordance with his views of the value of the work, but who did not intend to make claims, is very much at a disadvantage compared with his colleague who relies upon claims. Only a highly efficient organisation can counteract this defect of our industry."

As to how this organisation should be constituted, Mr. Bennett is silent, but I think it argues well for the necessity of increasing the status of the quantity surveyor, guaranteeing his integrity by registration with some entirely professional body and insisting upon his professional independence. The keynote of a quantity surveyor's function is to be an "unbiased arbitrator."

A rigorous campaign on the part of the Chartered Surveyors' Institution or the Incorporated Association of Surveyors might be able to counteract this defect of the building and allied industries.

LIBRA.

The Future of Air Raid Shelters.

TO THE EDITOR OF *The Builder*.

SIR,—Amongst the many recommendations put forward as the minimum requirements of a modern house, we now hear little of what was once universally called for in all vulnerable areas—namely, the air raid shelter.

At the present time, an outcry is heard for "a refrigerator for every house." This ideal can hardly be attained for many years to come, whereas it has been proved that a larder or cellar can be built at an economic cost, and can also be made large and strong enough to serve as an air raid shelter if need be.

I am prompted to ask whether the Government have arrived at any settled policy in this matter, or whether we are to proceed on the assumption that there will never be another war. If the latter policy is pursued, our successors may one day find themselves rebuilding the type of surface shelters which now disfigure so many of our streets.

If precautionary measures are to be taken, it would be well to know whether they should be provided in each house or whether the authorities will deal with the matter in each district on communal lines.

MORRIS THOMPSON.

Doncaster

BUILDING SOCIETIES AND HOUSING.

MR. R. BRUCE WYCHERLEY, Chairman of the Building Societies Association, addressing the Midland Association of Building Societies at Birmingham recently, pointed out that building societies could not finally clarify their plans or act upon their intentions until they knew Government policy with regard to the Barlow, Scott, and Uthwatt Reports.

"In the first period," he said, "which I should describe as the demand period, we must be ready to play our part in the provision of houses for letting. That means a development of a side of our business which we have always regarded as secondary. It will, I am convinced, have to take first place during the early post-war years. We must see to it that it is used by us wisely in the national interest so that tenants may become home-owners. I should like to see a scheme whereby we could foster houses to let upon the footing that some part, however small, of the rent can be used as part of the purchase price in the case of those tenants who are desirous of buying.

"In the second period, which I should call the period of supply, we shall, if we play our part patriotically in the first period, find that our main business of supplying the owner-occupier with a good house will come back to us in full, and it may be overwhelming, measure.

R.I.B.A.

Examinations for Prisoners of War.

IN the early part of 1943 arrangements were made, with the invaluable help of the British Red Cross Society and St. John War Organisation, for holding the R.I.B.A. Intermediate and Final Examinations in a number of Prisoner of War camps in Germany. As a special concession the candidates were permitted to take any or all of the subjects of the Intermediate Examination and of the Final Examination with the exception of Design and Professional Practice. In spite of the many difficulties the examinations were successfully held in four of the camps between March and June.

The following is a list of the successful candidates and the subjects in which they passed:—

INTERMEDIATE EXAMINATION: WHOLE EXAMINATION.

Captain R. G. Bateson (Oflag 1X A/H).

Lieut. J. G. Johnson, Lieut. S. E. Nicholas and Lieut. David O. Searle (Oflag VII B).

Cpl. Kenneth E. Foster and Cpl. John S. Madew (Stalag 383).

F/O John D. Cordwell and F/O H. W. Pickstone (Stalag Luft III).

F/Lieut. G. M. Fuller (Stalag Luft III) passed in History of Architecture and Calculations of Simple Structural Member, and F/O Thos. E. P. Ramsay (Stalag Luft III) in History of Architecture, Design and Constructional Design.

FINAL EXAMINATION.

In Oflag VII B, Lieut. P. L. Hansen Bay, 2nd Lieut. Edward J. Scollay and Lieut. J. C. O. Stansfield passed in General Construction, Theory of Structures, Hygiene, Specifications and the Properties and Uses of Building Materials. In Stalag Luft III, F/O Frank S. Knight passed in Hygiene, and F/Lieut. Anthony L. Parsons and F/O William R. Samson in Hygiene and Specifications and the Properties and Uses of Building Materials.

Most of the men concerned have received books to help them with their studies through the special Prisoner of War Scheme which is being run by the R.I.B.A. in co-operation with the British Red Cross and St. John War Organisation. Details of this scheme have been published in our columns from time to time.

Membership.

On Tuesday, February 15, the following members were elected:—

AS FELLOWS.

D. O. H. Davies (Birmingham).
E. J. Symcox (Ipswich).
G. R. Hutton, F.S.I. (Oxford).
F. McArdle, B.Sc. (Belfast).

AS ASSOCIATES.

J. D. Cadwallader (Sutton Coldfield).
W. S. Harper (London).
W. G. H. Davey (London).
C. J. McMahon, B.Arch. (N.U.I.), (Univ. Coll., Dublin) (Dublin).
H. Gatoff, Dip.Arch. (King's Coll.) (Univ. of Durham) (Newcastle-upon-Tyne).
Mrs. S. D. Taylor (Univ. of L'pool) (Liverpool).
K. P. Hand, B.Arch. (Univ. Coll., Dublin) (Dublin).
Ll. Thomas (Polytechnic, London) (London).
W. H. D. McCormick, Dip.Arch.(Lpl.)(Univ. of L'pool) (Londonderry).
L. P. Tierney (Univ. Coll., Dublin) (Newry, Co. Down).

Overseas.

M. Efroiken, Dip. Arch. (Capetown) (Capetown).
H. P. Mathew, B.Arch. (Rand) (Johannesburg).
J. B. Llyth (Univ. Coll., Auckland, N.Z.) (Wellington, N.Z).
H. H. M. Mee (Maroubra, N.S.W., Australia).
R. G. M. MacGoun, B.Arch. (Univ. Coll., Auckland, N.Z.) (Wellington, N.Z.).
H. E. M. Price (Umtali, S. Rhodesia).
F. W. Tavener (Killara, N.S.W., Australia).

AS LICENTIATES.

D. Bell (Northallerton).
B. S. Lowe (Wootton Wawen, nr. Birmingham).
C. Camish (London).
J. F. Mason (London).
J. W. Campbell (Malta).
J. C. Morris (London).
T. G. Champkins (Ewell, Surrey).
C. E. Moss (Salisbury).
J. F. Ford (Edinburgh).
C. A. Richards (Brentwood, Essex).
J. J. Giddens (London).
G. P. Townsend (Twickenham, Middlesex).
W. G. Hardwick (Chesterfield).
W. G. S. Venables (Cardiff).

TIMBER BUILDING MANUFACTURERS

ASSOCIATION'S LUNCHEON.

MR. ALFRED C. BOSSOM, M.P., and Sir Cecil M. Weir, K.B.E., were the guest speakers at a luncheon held at Oddenino's on March 2. MR. G. W. GROSVENOR, who occupied the chair, said that the Association had pledged itself to the task of co-operating with the Government in the work of rehousing the people. It had an immense potential that could be utilised for that purpose.

In his address, MR. BOSSOM mentioned the estimate made by the American journal *Fortune* that the timber industry had dropped from about 10,000,000 tons import pre-war to 1,000,000 tons to-day. Different opinions existed on the likelihood of its availability immediately after the war; some took the official view that it would be in short supply, but many in the trade were of the opinion that with the shipping available, there would be no difficulty in obtaining it. But, either way, the demand was so great that it was certain every effort would be made by exporting countries to get timber to us as quickly as possible after the war. "Timber," declared the speaker, "stands unique as being already proved capable of meeting the immediate post-war emergency demand in the way of temporary and demountable houses as easily as any other material, and possibly as cheaply. We may need a quarter of a million temporary homes. We have got to have them reasonably soon. Well, timber has been tried for this purpose; stressed plywood has been used, and successfully played its full part."

Over three-quarters of the people of the United States to-day lived in wooden houses (continued Mr. Bossom); the fire loss was approximately similar to our loss through the same cause when three-quarters of our people lived in brick houses. That was something the Association should look into.

Constructionally, timber had had uses from time immemorial, but recently entirely new uses had been devised. Lattice and box girders made of plywood were to-day in common use. Internal wall finishes made of that same medium lasted and improved with age, without paint. The modern trend in design called for great halls which were often semi-elliptical in form; these, sometimes 100 ft. across, could be held structurally perfect simply by means of laminated members that sprang from the floor on one side, went to the top, and came down the other side. Compressed wood waste was already beyond the laboratory stage for flooring, while wood shavings, compressed, formed a most satisfactory thermal and sound insulator, and were rapidly coming into common use without any further finish. Wood wool pressed between layers of special asbestos, into which nails could readily be driven, might very soon form the exterior walls of many temporary, and even permanent, houses. Timber structures could be set up, bolted together and unbolted; thereby being usable many times.

"Of course," added the speaker, "there are many other materials, such as metals, cast concretes, pressed boards, all of which will be required, but there will be room for all of these in the great post-war drive to meet our demands."

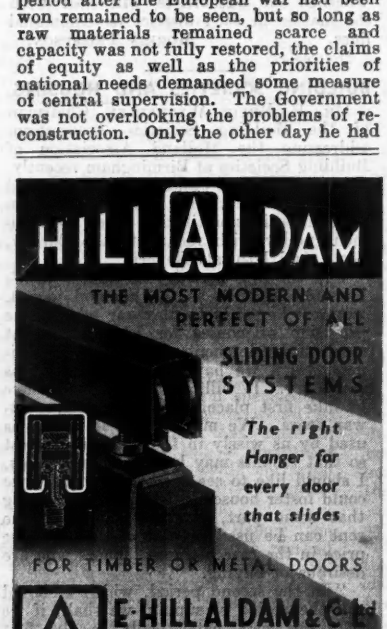
Many contended that wooden houses were warmer in winter and cooler in summer, under extremes of climate, more so than solid wall structures, and there was no doubt that timber, as a medium, did lend itself far more to factory fabrication which allowed the utmost speed of erection on the site. Once taken there and properly looked after, it was capable of a very long life. "Many ask the question: 'Will timber, particularly plywood, withstand the rigours of our climate?' Well, the Mosquito airplane very successfully withstands all the strains and jolts of the normal ingredients of an airplane's life. It goes from the ground into the frozen semi-stratosphere and comes down without the slightest disadvantage. Quite equally, our 'little ships,' which battle the oceans from the Arctic to the Equator, are made of plywood and have experienced no disadvantage whatsoever now that the modern gloss and appropriate finishes are made available. Surely, if plywood can successfully perform these tasks it can stand up to the difficulties of our climate.

"When we realise that we have, in the 10 ensuing years of peace at the end of the war, also to furnish no fewer than 4,000,000 new homes and thousands of new schools, the demand for timber and wood, in this form, too, is going to be tremendous. Now that 'Take to Pieces' furniture has been developed successfully, and whole wardrobes, tables, chairs, bedsteads, and bureaux can be set up securely in complete form, and then taken down again by pulling out the pegs and packed up into small containers ready to be moved away to another place, surely the outlook for those who handle timber in this country is very clear."

The utmost investigation and research should be made into the capabilities and limitations of timber in all its various forms and uses, and this should be handled undoubtedly by the timber authorities themselves, so as to be fully informed as to the effect of different climatic conditions upon their media. Equally, it was desirable that those interested in the building industry should make a convincing contact with the architects, the engineers, the contractors, the authorities of the building societies and loading agencies, the transport people and the importers, and get in communication with all the other timber research bodies all over the world, such as those at the university at Madison, Wisconsin, who, he was sure, would be willing to exchange information.

SIR CECIL WEIR, who also spoke, said that direction had been necessary in the national interest to ensure the most economic application and utilisation of the resources of the industry in the circumstances of war, but it had been no less necessary from the standpoint of the industry. How far direction would continue to be wanted in the transition period after the European war had been won remained to be seen, but so long as raw materials remained scarce and capacity was not fully restored, the claims of equity as well as the priorities of national needs demanded some measure of central supervision. The Government was not overlooking the problems of reconstruction. Only the other day he had met representatives of the various Associations in the joinery industries, and representatives of the trade unions concerned, and they had set up a reconstruction committee which would work out plans for the restoration and, he hoped, expansion of these industries when the turnover from war to peace activities became possible.

To the woodworking industries and all engaged in them the extent of the industrial and housing needs offered prospects of employment and prosperity for many years to come, but more than that it offered an opportunity of service to the community which, he was sure, would be a far more potent and enduring satisfaction than anything that could be set down in terms of material profit.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WAR-DAMAGED PRE-1914 HOUSES

THE War Damage Commission has issued the following statement:—

It will be recalled that the Treasury Direction of October 25, 1943, which empowers the War Damage Commission to make a cost of works payment in respect of war damaged houses built after March 31, 1914, even though totally destroyed, applies also to houses built before March 31, 1914, where the Commission is satisfied that immediately before the war damage the structure was practically as sound as at the date of building and that the design, layout and amenities of the houses were reasonably equal to those of similar houses built since 1914.

Recently the Auctioneers' and Estate Agents' Institute invited from the Commission a statement explaining how it proposed to interpret the words " and that the design, layout and amenities of the house were reasonably equal to those of similar houses built since 1914." In reply to this inquiry, the Commission has stated that, while anxious to take the public into its confidence as far as possible on matters affecting its procedure, it has come to the conclusion that difficulties involved in publication would in this case outweigh the advantages. So many factors other than structural condition (for example, layout, services and amenities of all sorts) have to be taken into consideration that it would be unwise and often unfair to lay down hard and fast rules applicable throughout the country.

The reply went on to suggest that owners of pre-1914 houses who object to the classification of "total loss," and claim the benefit of the Treasury Direction, should support their claim by supplying information as to the approximate date when the property was built, plans if available, and/or a full description of the property, together with any particulars (including date and cost) of any substantial works of reconstruction or improvement which have been carried out. If plans are not available, a rough sketch showing the accommodation and layout will be helpful.

THE CONCRETE YEAR BOOK.

The 1944 issue of this Year Book (the 21st year of publication) shows the wide interest fully maintained by the editors, Dr. Oscar Faber, O.B.E., D.Sc., and Mr. H. L. Childe. The handbook section has been brought up to date, and represents a source of information and reference which, we think, could scarcely be bettered; the chapter on "War-time uses of Concrete" is especially interesting, while the memoranda section again provides a means of ready reference. The directory section has been revised to last December, and with the catalogue section of plant and materials suppliers provides not the least valuable component of a book that should be in every designer and constructor's office. Price 5s. 7d. (post free) it is published by Concrete Publications, td., 14, Dartmouth-st., S.W.

HOUSING SITES

M.O.H. NOTES ON ADVANCE PREPARATION.

IN connection with the Circular (14/44) on the Advance Preparation of Sites for Municipal Housing issued by the Ministry of Health to local authorities (and printed in full in our issue for February 25), the following outlines of the scheme are given by the Ministry:—

1. (i) Sites should be grouped in order to provide a contract of sufficient size. It would not be possible to organise and carry out the work economically on this basis if the contractor were responsible to a number of authorities within his area. Either, therefore, an area should be confined to the sites belonging to one large authority with a sufficiently large programme to justify this, or the authorities in an area should form a group and one of their number acting on behalf of them all should be responsible for the contract.

(ii) In each area a site preparation contract will be let to a suitable large contractor and this contract will cover all the sites in the area. The contractor will be responsible for organising the work as between the different sites, moving his plant and key men from site to site in accordance with the most economical method of carrying out the work.

(iii) The contractors to be employed will be approved by the Government since the overloading of particular contractors must also be avoided.

(iv) The contractual arrangements should be agreed by the Government so as to be reasonably uniform. Provision will, however, be made for approved variations in the specifications to meet varying local conditions.

(v) Local authorities may have to secure additional technical assistance to enable them to prepare the layouts and the information necessary to enable contracts to be let, and to supervise the contracts when let. It may be that some members of the technical staffs of local authorities are at present employed upon the airfield programme. It may sometimes be most economical where groups are formed for staffs to be obtained by the leading local authority and for them to prepare layouts, etc., for the other members of the group. When arrangements for grouping have been made, local authorities should, if the work cannot be done by their existing staff or by local professional firms in private practice, apply to the Appointments Department of the Ministry of Labour and National Service for fresh staff. Applications for men with full professional qualifications should be made to the Central (Technical and Scientific) Register, Alexandra House, Kingsway, London, W.C.2; and applications for other technical staff should be made to the provincial Appointments Offices.

(vi) If the authorities in any area, while unable or unwilling to form a suitable group, still wish to take advantage of the scheme, the Ministry of Health will ask the Ministry of Works to accept responsibility for placing and running the contracts, as agent for the local authorities, which will remain responsible for the layout of sites and the provision of all necessary information.

2. The Ministry of Works estimate that the cost of carrying out the work at present prices, provided runway contractors' methods are used on a large scale, would be approximately £55 per house, excluding water, gas and electricity services except at street crossings. The cost will form part of the cost of the housing scheme of the local authority. It is hoped that so far as possible local authorities will be able to avoid external borrowing by using internal resources but, where necessary, loans will be sanctioned in the ordinary way for periods of 20 and 30 years respectively for roads and sewers provided they are raised from the Public Works Loan Board. Special arrangements will be made to enable local authorities who do not normally borrow from the Public Works Loan Board to do so for this purpose. It is assumed that where arrangements are made for grouping, each local authority in the group will raise its loan separately and recoup the leading local authority. Where the work is carried out by the Ministry of Works as agent of a local authority a special arrangement will be necessary.

3. It will be economical to apply arrangements of this kind only to sites of five acres and above. As regards sites under five acres it will be open to local authorities to apply the procedure of Circular 2871 and to enter into contracts with local contractors in so far as immobile labour is available.

4. Further details on technical points in connection with the scheme are as follows:—

WORK TO BE DONE: (a) Construct roads and kerbs in concrete to a specification suitable for the district; footpaths and verges should not be made up but excavation to formation levels should be to the full width between curtilages.

(b) Construct soil and storm water sewers with branches for house connections.

(c) Make arrangements with the local water, gas and electricity undertakers on the lines indicated in the Circular.

LABOUR ALLOCATION: 5. Labour will be allocated. This will involve W.B.A., with direction of mobile labour, and application of the Uniformity Agreement and E.W.O.

INFORMATION REQUIRED FROM LOCAL AUTHORITIES: 6. The information to be supplied in duplicate to the Senior Regional Officer will be:—

(i) Layout plan of roads with levels and cross and longitudinal sections.

(ii) Plans and details of sewers and drains, and information as to special requirements.

(iii) All information possible as to the nature of the subsoil, the level of rock (if any), and other technical data to enable contractors to appreciate the work involved before tendering.

NOTE: It will facilitate arrangements and reduce cost where local authorities agree, as is now common practice, for groups of houses to be connected to one branch drain. In such cases the detailed siting of buildings will not be so essential as where separate connections are proposed. Combined sewerage should be adopted where feasible.

COMPETITIVE TENDERS AND FORM OF CONTRACT: 7. It will be important that the authority responsible for the group work in an area should obtain and provide information as to the situation of sites already available and the approximate situation of any further sites which may become available for inclusion in the scheme without interrupting continuity of work. For the purpose of obtaining competitive tenders from contractors experienced in and suitable for this work a bill of quantities will be prepared representing a site typical of the area. The bill will be priced by the authority and contractors will prepare tenders on the basis of a percentage on or off these prices. Lowest suitable tenderers will be given all work in the area, subject to the work generally being properly spread over the available contractors. Tenders will cover all costs, including costs of a 60-hour week (without Sunday working), Uniformity Agreement, welfare, E.W.O., watching and lighting, pumping to keep excavations free from water, holidays with pay, insurance, preliminary items, etc.

Payment for the actual work done on each site should be on measurement at the rates tendered in the bill of quantities for the typical site by the successful contractor.

RESPONSIBILITY FOR CONTRACT: 8. If in any area local authorities are not able to make such grouping arrangements as outlined in paragraph 1, the Ministry of Works are prepared on the request of the authorities which should be made to the Ministry of Health to be responsible for letting and running group contracts. In this as in all cases local authorities will have full right of access and inspection, as they have in the case of private development, to satisfy themselves that the agreed specification and other requirements are complied with.

All contracts will contain a clause enabling the responsible authority or the Ministry of Works to assign benefit of contract to each local authority concerned so that each authority may control the contract themselves after completion during the maintenance period.

ESTIMATE OF COST: 9. The Ministry of Works have prepared a preliminary estimate based on a bill of quantities for a typical site.

The estimated cost on this basis is £3 13s. 7d. per foot run of road.

The main items included in the estimate are:—

1. Excavation and filling to formation level.
2. 3 in. ashes.
3. 7 in. thick concrete road complete (with precast concrete kerbs), average width 18 ft., reinforced only where the ground is doubtful.
4. 6-in. and 9-in. soil sewers.
5. 9-in. average surface water sewer.
6. Manholes at 100 yards centres.
7. Gullies at 150 ft. centres.
8. Branches for soil and surface water connections for every six houses.
9. Conduit pipes at road crossings for electric cables.

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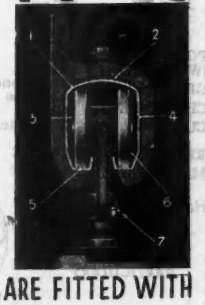

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Long Service in Kent.

Attention is drawn to a remarkable record of service to the organised building industry by the resignation of Mr. W. T. Burrows from the Presidency of the Maidstone Association of Builders and Allied Trades. Mr. Burrows has served as President of that Association for the past 18 years, and during the whole term of his office he missed attendance from one general meeting only of the Association, and that owing to illness. Mr. Burrows has now retired from office and takes with him the sincere esteem of his colleagues in Maidstone and the gratitude of the Southern Counties Federation for the great work which he has performed.

TEMPORARY HOUSING DURING RECONSTRUCTION

A HOUSING CENTRE LECTURE.

"TEMPORARY and Demountable Housing for Reconstruction" was the title of an address by MR. H. J. SPIWAK given at the Housing Centre on February 22. Mr. Spiwak is a Polish architect now resident among us, and his lecture dealt partly with the work of reconstruction in his own country.

In Great Britain, he said, temporary housing accommodation would be required for (1) the demobilised soldiers wanting to set up homes, (2) workers returning from war-time factories to places of their previous occupation, (3) re-evacuated people, (4) bombed-out people with no alternative accommodation, and (4) the large group of people who would normally have set up homes but had been prevented by war-time stoppage of building. Every fifth house had been bombed and five million people had shifted their habitation. The utilisation of existing war-time huts and the possibility of switching the barracks machinery into the production of a great number of units for temporary housing did not present difficulties; but difficulties rested with various other questions, such as those of sites, site work, transport, services, and the general planning aspects of temporary housing.

Of site work Mr. Spiwak said the existing types of hutments required a large amount of site work, and the times required for their erection ranged from 130 to 850 man-hours; at the same time some of the prefabricated houses proper might be erected with the expenditure of less than 100 man-hours and weighed perhaps only half as much as the hut construction. Of services he said that the provision of temporary shelter required a certain amount of underground services, and these would only in very few places be suitable for permanent housing on the same site. Perhaps half the material and labour spent on these services must be regarded as wastage.

The Waste Factor.

Speaking of the proposition to build houses intended to be used for only ten years, he said if this resulted in a lowering of the quality of materials it would be a waste of both materials and labour. It would require only a little more labour to produce sound permanent materials and structures. Whilst, therefore, the licensed life of the structure should be terminated after a period of, say, three to ten years, the materials themselves ought to be suitable for further utilisation. The whole buildings, or their component parts, should continue to be used in this country, on the Continent, or wherever the houses were needed.

There was one structural aspect of post-war building which should, he thought, be investigated; it might be possible to build prefabricated houses which could be of a permanent character while corresponding in their technique of erection and standard of requirements to the needs and requirements of an immediate post-war period. Thus there might be designed a structure of permanent character based on available materials and a great simplicity of production and quickness of erection; and such houses might be built for the first two years after the war, the type of construction being abandoned when the availability of other materials and the condition of the labour market made the change opportune.

The lecturer explained proposals for the erection of temporary shelters, saying the best feature of those proposals was the linking up of temporary structures with the permanent building programme for a further ten years to follow the two-year temporary housing scheme. The main permanent building programme would start in the course of the two years, and prefabricated houses might be erected together with brick types. One feature of the permanent programme that should be applied also to the temporary one was the standardisation of fittings and equipment. Window types had been reduced to three basic types, baths would be produced in five varieties instead of forty, while tanks, cisterns and water-heaters would be reduced from 272 to 100 types.

The Government's Programme.

The Government's programme for housing was rather on the conservative side. The proper scale should probably be 250,000 in the first year, rising by 250,000 every year until it reached 1,000,000 a year, and then declining to the level of satisfying normal requirements and replacements. Another point requiring attention was the control of building materials. What was the use of designing temporary structures in cheap and good materials if costs were controlled by monopolies?

Mr. Spiwak's account of conditions in Poland showed things to be much worse there than here.

The Outlook for Timber.

On the general position with regard to timber, he said he was informed timber would be coming here about a year after the war was over, and in eighteen months there would be as much as would be wanted; but, of course, it would not be seasoned. There was an inexhaustible supply of timber in Siberia. The question was one of transport.

IN PARLIAMENT

Local Authorities and Planning.

SIR PERCY HURD asked the Minister of Town and Country Planning to what extent local authorities were dealing with their planning problems through joint committees in coterminous areas; and what was the scope and method of this co-operation.

MR. W. S. MORRISON, in a circulated statement, said that at present 862 out of 1,396 planning authorities are carrying out their planning duties through 158 joint executive committees, and the number of such committees is likely to increase.

Any two or more local authorities may be formed into a joint committee, either by their own desire or by an order made by me. A joint committee may have conferred upon it all or any of the planning powers of a local authority except the power to borrow money or to levy a rate. Such a committee will be responsible for the preparation of a scheme covering the areas of the constituent local authorities, and for this purpose will normally employ a planning officer, or consultant, who will be in close touch with my Regional Planning officer for the area. In the preparation of their scheme a joint committee consults each of the constituent authorities and considers their observations before submitting the scheme to me for approval.

In addition to the joint committees referred to, an operative scheme may provide for a joint body specially constituted to enforce or to carry into effect the provisions of the scheme.

War Damage Repairs.

LIEUTENANT-COLONEL DOWER asked the Parliamentary Secretary to the Ministry of Works whether, in a case where, after £100 had been expended on repairs on a single house in a period of 12 months, further urgent repairs became necessary during the 12 months not caused by fresh war damage, it was necessary to obtain a certificate of essentiality from the local authority and a licence from his department before the repairs could be carried out.

MR. HICKS: A licence is required from the Ministry of Works if the cost of the further repairs, together with the cost of the work already carried out on the house in the preceding 12 months, exceeds £100. If the cost of the further repairs does not exceed £500 a certificate of essentiality may be obtained from the local authority. Such a certificate, if granted, will assist in obtaining a licence and any controlled materials.

Temporary Houses.

MR. GRAHAM WHITE asked the Parliamentary Secretary to the Ministry of Works if he was in a position to state the policy of the Government with regard to the ownership and life of temporary houses to be erected at the end of the war in Europe.

MR. HICKS: I cannot add to what my Noble Friend has already stated in another place, namely, that the Government has decided that temporary houses, if approved, shall be publicly owned and licensed for a period. If and when the temporary houses are approved, the Government will have to determine the period of life for them.

Satellite Towns.

MAJOR SIR ADRIAN BAILLIE asked the Minister of Town and Country Planning what was his official policy as to the desirability of the creation of satellite towns to take population from London.

MR. W. S. MORRISON: My Department is at present studying, in the light of the County of London Plan, various methods (including the creation of satellite towns) by which, according to circumstances, provision may most appropriately be made for population dispersed from London.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 2nd APRIL, 1943

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.
Aberavon	2/0	1/7
Aberdare	2/0	1/7
Abergavenny	2/0	1/7
Abingdon	1/10½	1/5½
Accrington	2/0	1/7
Aldeburgh	1/8½	1/4½
Aldershot	1/10½	1/5½
Alfreton U.D.	2/0	1/7
Alnwick	1/11½	1/6½
Altrincham	2/0	1/7
Amble	1/11½	1/6½
Amersham	1/10½	1/5½
Ammanford	2/0	1/7
Andover	1/10	1/5½
Ardingly	1/10	1/5½
Arundel	1/10	1/5½
Ascot	1/10	1/5½
Ashby-de-la-Zouch U.D.	2/0	1/7
Ashford (Kent)	1/10	1/5½
Ashford (Middlesex)	2/0	1/7
Ashington	1/11½	1/6½
Ashtead	2/0	1/7
Ashton-under-Lyne	2/0	1/7
Aylesbury	1/10	1/5½
Aylsham	1/9	1/4½
Bagshot	1/10	1/5½
Banbury	1/10	1/5½
Barnsley	2/0	1/7
Barnstaple	1/10	1/5½
Barrow-in-Furness	2/0	1/7
Barry	2/0	1/7
Basingstoke	1/10	1/5½
Bath	1/11½	1/6½
Batley	2/0	1/7
Beaconsfield	1/10½	1/5½
Beccles	1/8½	1/4½
Bedford	1/11½	1/6½
Berkhamsted	1/10	1/5½
Berwick	1/11½	1/6½
Beverley	2/0	1/7
Bexhill	1/10½	1/5½
Bideford	1/10	1/5½
Biggleswade	1/10	1/5½
Billericay	1/9½	1/5
Birchington	1/10	1/5½
Birkenhead	‡§2/1	¶
Birmingham C.B.	†2/0	†1/7
Bishop Auckland	2/0	1/7
Bishop's Stortford	1/11	1/6½
Blackburn	2/0	1/7
Blackpool	2/0	1/7
Blyth	2/0	1/7
Bognor Regis	1/10	1/5½
Bolton	2/0	1/7
Bournemouth	1/11	1/6½
Bracknell	1/10	1/5½
Bradford	2/0	1/7
Bradford-on-Avon	1/9	1/4½
Braintree	1/10	1/5½
Brentwood	1/11½	1/6½
Bridgwater	1/10½	1/5½
Bridlington	1/11½	1/6½
Brighouse	2/0	1/7
Brighton	1/11	1/6½
Bristol	2/0	1/7
Broadstairs	1/10	1/5½
Bromsgrove U.D.	1/11½	1/6½
Buckley	2/0	1/7
Bungay	1/8	1/4
Burnham-on-Crouch	1/8½	1/4½
Burnley	2/0	1/7
Burslem	2/0	1/7
Burton-on-Trent C.B.	2/0	1/7
Bury	2/0	1/7
Bury St. Edmunds	1/9½	1/5
Buxton	1/11½	1/6½
Byfleet	1/10½	1/5½
Cambridge	2/0	1/7
Canterbury	1/10	1/5½
Cardiff	2/0	1/7
Carlisle	2/0	1/7
Carnforth	2/0	1/7
Castleford	2/0	1/7
Caterham	2/0	1/7
Chard	1/9	1/4½
Chatham	1/11	1/6½
Chelmsford	1/11½	1/6½
Cheltenham	1/11	1/6½
Chepstow	1/11½	1/6½
Chertsey	1/11	1/6½
Chester	2/0	1/7
Chesterfield M.B.	2/0	1/7
Chichester	1/10	1/5½
Chorley	2/0	1/7
Cirencester	1/9½	1/5
Clacton	1/10	1/5½
Cleveleys	2/0	1/7
Clitheroe	2/0	1/7
Cobham (Surrey)	1/11	1/6½
Colchester	1/11½	1/6½
Colwyn Bay	1/11	1/6½
Congleton	1/11½	1/6½
Coventry C.B.	2/0	1/7
Cranbrook	1/10	1/5½
Cranleigh	1/10	1/5½
Crawley	1/10	1/5½
Crewe	1/11½	1/6½
Cromer	1/9	1/4½
Crowborough	1/10	1/5½
Cuckfield	1/10	1/5½
Darlington	2/0	1/7
Darwen	2/0	1/7
Daventry M.B.	1/10½	1/5½
Deal	1/10	1/5½
Denbigh Town	1/11	1/6½
Derby C.B.	2/0	1/7
Devizes	1/9	1/4½
Dewsbury	2/0	1/7
Didcot	1/10	1/5½
Diss	1/8½	1/4½
Doncaster	2/0	1/7
Dorchester	1/9½	1/5
Dorking	1/10½	1/5½
Dover	1/10	1/5½
Dovercourt	1/10	1/5½
Driffield	1/10½	1/5½
Droitwich M.B.	1/11½	1/6½
Dudley M.B.	2/0	1/7
Dunstable	1/10½	1/5½
Durham City	2/0	1/7
Eastbourne	1/11	1/6½
E. Glam. (Mon. Val.)	2/0	1/7
East Grinstead	1/10	1/5½
Edenbridge	1/10	1/5½
Ely	1/9	1/4½
Epping	2/0	1/7
Exeter	1/11½	1/6½
Exmouth	1/10½	1/5½
Fakenham	1/9	1/4½
Falmouth	1/10½	1/5½
Fareham	1/11	1/6½
Faversham	1/10	1/5½
Felixstowe	1/11	1/6½
Filey	1/10½	1/5½
Fleetwood	2/0	1/7
Flint	2/0	1/7
Folkestone	1/10	1/5½
Frinton-on-Sea	1/10	1/5½
Frome	1/9	1/4½
Gainsborough U.D.	1/11	1/6½
Gateshead	2/0	1/7
Gillingham (Kent)	1/11	1/6½
Glossop	2/0	1/7
Gloucester	1/11½	1/6½
Godalming	1/10	1/5½
Goole	2/0	1/7
Gosport	1/11½	1/6½
Grantham M.B.	1/11	1/6½
Gravesend	1/11½	1/6½
Great Yarmouth	1/10	1/5½
Grimsby	2/0	1/7
Guildford	1/10	1/5½
Guilsborough	1/10½	1/5½
Halifax	2/0	1/7
Hanley	2/0	1/7
Harpenden	1/11	1/6½
Harrogate	2/0	1/7
Hartlepools	2/0	1/7
Harwich	1/10	1/5½
Haslemere	1/10	1/5½
Hastings	1/10	1/5½
Hatfield	1/11½	1/6½
Haywards Heath	1/10	1/5½
Hednesford	1/11½	1/6½
Hemel Hempstead	1/11	1/6½
Henley-on-Thames	1/10	1/5½
Hereford	1/10	1/5½
Herne Bay	1/10	1/5½
Hertford	1/11½	1/6½
Heysham	2/0	1/7
Hitchin	1/11	1/6½
Hoddesdon	1/11½	1/6½
Holt (Norfolk)	1/8½	1/4½
Horley	1/10	1/5½
Horsham	1/10	1/5½
Horwich	2/0	1/7
Huddersfield	2/0	1/7
Hull	2/0	1/7
Hunstanton	1/9	1/4½
Huntingdon	1/9½	1/5
Ilfracombe	1/10	1/5½
Ingatestone	1/10½	1/5½
Ipswich	1/11½	1/6½
Isle of Thanet	1/10	1/5½
Isle of Wight	1/9½	1/5
Keighley	2/0	1/7
Kenilworth	2/0	1/7
Kettering M.B.	2/0	1/7
Kidderminster M.B.	1/11½	1/6½
King's Lynn	1/10	1/5½
Kirkham	2/0	1/7
Knowle	1/11½	1/6½
Lancaster	2/0	1/7
Leamington M.B.	2/0	1/7
Leatherhead	1/11	1/6½
Leeds	2/0	1/7
Leicester C.B.	2/0	1/7
Leighton Buzzard	1/9	1/4½
Letchworth	1/11	1/6½
Lewes	1/10	1/5½
Lichfield M.B.	1/11	1/6½
Lincoln C.B.	2/0	1/7
Littlehampton	1/10	1/5½
Liverpool	‡§2/1	¶
Llandudno	1/11	1/6½
Llanelly	2/0	1/7
London—		
12m. radius	2/1½	1/8
12-15m. radius	2/1	1/7½
Long Eaton U.D.	2/0	1/7
Longton	2/0	1/7
Loughborough M.B.	2/0	1/7
Louth M.B.	1/10½	1/5½
Lowestoft	1/10	1/5½
Luton	1/11½	1/6½
Macclesfield	1/11½	1/6½
Maidenhead	1/11	1/6½
Maidstone	1/10½	1/5½
Malvern U.D.	1/10½	1/5½
Manchester	2/0	1/7
Manningtree	1/9	1/4½
Mansfield M.B.	2/0	1/7
March	1/9	1/4½
Margate	1/10	1/5½
Market Harborough	1/11	1/6½
Matlock U.D.	1/10½	1/5½
Melton Constable	1/8½	1/4½
Melton Mowbray	1/11	1/6½
Merthyr	2/0	1/7
Middlesbrough	2/0	1/7
Middleton	2/0	1/7
Middlewich	1/11½	1/6½
Milford Haven	1/10½	1/5½
Morecambe	2/0	1/7
Morley	2/0	1/7
Mundesley	1/9	1/4½
Nantwich	1/11½	1/6½
Nelson	2/0	1/7
Newark-on-Trent	1/11½	1/6½
Newbury	1/10	1/5½
Newcastle-on-Tyne	2/0	1/7
Newcastle-u.-Lyme	2/0	1/7
New Forest	1/10	1/5½
Newmarket	1/10	1/5½
Newport, Mon.	2/0	1/7
Newport Pagnell	1/10	1/5½
Northampton C.B.	2/0	1/7
Norwich	2/0	1/7
Nottingham	2/0	1/7
Nuneaton	2/0	1/7
Oakham U.D.	1/10½	1/5½
Oldham	2/0	1/7
Ormskirk	2/0	1/7
Oxford	1/11½	1/6½
Oxted	1/10½	1/5½
Paignton	1/11½	1/6½
Peterborough (Borough)	1/11½	1/6½
Plymouth	2/0	1/7
Pontefract	2/0	1/7
Pontypridd	2/0	1/7
Port Talbot	2/0	1/7
Portsmouth	1/11½	1/6½
Preston	2/0	1/7
Pulborough	1/10	1/5½
Ramsgate	1/10	1/5½
Reading	1/11½	1/6½
Redditch U.D.	1/11½	1/6½
Redhill	1/10½	1/5½
Ripon	1/10½	1/5½
Rochdale	2/0	1/7
Rochester	1/11	1/6½
Rugby M.B.	2/0	1/7
St. Albans	1/11½	1/6½
St. Helens	2/0	1/7
St. Neots	1/9½	1/5
Saffron Walden	1/9	1/4½
Salisbury City	1/9½	1/5
Salisbury Plain	1/11	1/6½
Sawbridgeworth	1/10½	1/5½
Saxmundham	1/8½	1/4½
Scarborough	1/11½	1/6½
Scunthorpe	2/0	1/7
Selby	2/0	1/7
Sevenoaks	1/10½	1/5½
Sheerness	1/10	1/5½
Sheffield	2/0	1/7
Shipley	2/0	1/7
Shoeburyness	1/11½	1/6½
Shoreham	1/11	1/6½
Shrewsbury M.B.	1/11½	1/6½
Sittingbourne	1/10	1/5½
Skegness U.D.	1/11	1/6½
Sleaford U.D.	1/10½	1/5½
Slough	1/11	1/6½
Smethwick	†2/0	†1/7
Southampton	1/11½	1/6½
Southend-on-Sea	1/11½	1/6½
Southport	2/0	1/7
South Shields	2/0	1/7
Spalding	1/10	1/5½
Stafford M.B.	1/11½	1/6½
Staines	1/11	1/6½
Stamford M.B.	1/11	1/6½
Stevenage	1/11	1/6½
Stockport	2/0	1/7
Stockton-on-Tees	2/0	1/7
Stoke-on-Trent C.B.	2/0	1/7
Stourbridge M.B.	2/0	1/7
Stourport U.D.	1/11½	1/6½
Stowmarket	1/9	1/4½
Stratford-on-Avon M.B.	1/11	1/6½
Stroud	1/11	1/6½
Sunderland	2/0	1/7
Sutton Coldfield M.B.	2/0	1/7
Swaffham	1/8½	1/4½
Swanage	1/10	1/5½
Swansea	2/0	1/7
Swindon	1/10½	1/5½
Tamworth M.B.	1/11½	1/6½
Taunton	1/10½	1/5½
Tenterden	1/10	1/5½
Thames Haven	2/0	1/7
Thetford	1/9½	1/5
Thorpe Bay	1/11½	1/6½
Todmorden	2/0	1/7
Tonbridge	1/10½	1/5½
Torquay	1/11½	1/6½
Totnes	1/10	1/5½
Trowbridge	1/9	1/4½
Truro	1/9½	1/5
Tunbridge Wells	1/10½	1/5½
Uppingham (Salop)	1/11½	1/6½
Uttoxeter U.D.	1/10½	1/5½
Wakefield	2/0	1/7
Walsall C.B.	2/0	1/7
Walsden	2/0	1/7
Walton-on-Naze	1/10	1/5½
Ware	1/11½	1/6½
Warminster	1/9	1/4½
Warrington	2/0	1/7
Warwick M.B.	2/0	1/7
Wellington R.D.	1/11½	1/6½
Welwyn	1/11	1/6½
Welwyn Gar. City	2/0	1/7
Wells (Norfolk)	1/8½	1/4½
West Bromwich C.B.	2/0	1/7
Westcliff-on-Sea	1/11½	1/6½
Weston-super-Mare	1/11	1/6½
Weybridge	1/11	1/6½
Weymouth	1/10	1/5½
Whitby	1/11	1/6½
Whitstable	1/10	1/5½
Widnes	2/0	1/7
Wigan	2/0	1/7
Wigton	1/10½	1/5½
Willington	2/0	1/7
Wilmslow	2/0	1/7
Winchester	1/10½	1/5½
Windermere	1/10½	1/5½
Windsor	1/11	1/6½
Wisbech	1/9½	1/5
Witham	1/10	1/5½
Witney	1/10½	1/5½
Wokingham	1/10	1/5½
Wolverhampton C.B.	2/0	1/7
Woodbridge	1/9½	1/5
Worcester C.B.	1/11½	1/6½
Workington	1/10½	1/5½
Worksop	1/11½	1/6½
Worthing	1/10	1/5½
Wrexham	1/11½	1/6½
Wroxham	1/9½	1/5
Wycombe	1/11	1/6½
Wymondham	1/9	1/4½
Yeovil	1/10½	1/5½
York	2/0	1/7

† Plus 2d. per working day. ‡ Plasterers 2/1½. ¶ Tradesmen's Labourers, 1/7½. Navvies and General Labourers, 1/6½

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

NOTE.—Carpenters, Joiners and Plumbers in all Towns and Districts (other than Birkenhead and Liverpool) receive 2d. per day Tool Allowance.

For Building Trade Wages in Scotland, see page 207.

PRICES CURRENT OF MATERIALS*

NOTE.—These prices apply to large quantities of materials at works at London stations, or site, in London area as stated. Prices for smaller quantities ex merchant's warehouse will of course be higher. Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. The prices of soft woods are for cash on delivery.

BRICKS, &c.

	£ s. d.
First Hard Stocks	4 16 0
Second Hard Stocks	4 9 0
Mild Stocks	3 16 0
Single Rough Stocks	3 10 0
Common Stocks	3 0 6

All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job. *In addition*, there will be the Levy under the Bricks (Charges) Order, 1942, of 3s. per 1,000.

2½ in. Phorpres. A discount of 6d. 1,000 only monthly account.	King's Cross Station per 1,000 s. d.	To sites in W.C. District per 1,000 s. d.
Pressed	56 9	63 3
Keyed	58 9	65 3
Single Bullnose	76 9	83 3
Rustics	76 9	83 3
Whites	77 3	83 3

	£ s. d.
White Midhurst Best selected (delivered London site)	5 10 0
Best blue Pressed Staffs. (London Stns.)	11 12 0
Do. Bullnose (London Stns.)	12 2 0
Blue Wire Cuts (London Stns.)	10 9 6

Best Stourbridge Fire Brick (London Stns.) :—

£ s. d.	£ s. d.
2½ in. 10 0 0	3 in. 12 0 0

GLAZED BRICKS (London Stns.). Add 12½% to Prices.

Best White Ivory and Salt Glazed Stretcher	30 0 0	D'ble Str'tch'rs	38 10 0
		D'ble Headers	35 10 0
Headers	29 10 0	One side&two ends	39 10 0
Quoins, Bullnose and 4½in.Flats	36 10 0	Two sides&one end Splays and Squints	40 10 0
			38 0 0

Second Quality, £2 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

ADD LEVY ON BRICKS, 3/– per 1,000 except Glazed Bricks.

PARTITION SLABS.

Delivered on site London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

	s. d.		s. d.
2" per yd. sup. ..	2 8	3" per yd. sup. ..	3 6
2½" " "	2 11	4" " "	3 10

CLINKER CONCRETE.

2" per yd. sup. ..	1 11	3" per yd. sup. ..	2 6
2½" " "	2 3	4" " "	3 6

CRANHAM TERRA COTTA.

Size 12 x 9 x 2" per yd. super	2 8
Size 12 x 9 x 2½" "	2 11
Size 12 x 9 x 3" "	3 6
Size 12 x 9 x 4" "	3 10

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 8	12" x 9" x 3"	3 6
12" x 9" x 2½"	2 11	12" x 9" x 4"	3 10

Per yard super d/d. Free on site, London.

Plus 2d. for smooth one side, and 4d. for smooth both sides.

STONE.

	s. d.
BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 3½
BEER STONE—RANDOM BLOCK— Free on rail at Seaton Station per ft. cube	2 3
Delivered free on rail Nine Elms, S.R. "	3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.	
PORTLAND STONE— Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R. .... per ft. cube	4 7
Do. do. delivered on road waggons as above stations ..... per ft. cub.	4 7
White basebed, 3d. per ft. cube extra. NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and 4d. beyond 30 ft.	
HOPTON-WOOD STONE— F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10ft. and over P.ft.cb.	s. d. 13 2
Sawn two sides	26 11
Sawn three or four sides.....	31 11
YORK STONE, BLUE—*Robin Hood Quality*. Delivered at any Goods Station, London. 6 in. sawn two sides landings to sizes (under 30 ft. super) ..... per ft. super	5 6
6 in. rubbed two sides, ditto "	6 3
3 in. sawn two sides slabs (random sizes) ..... "	2 7
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) "	1 8½
1½ in. to 2 in. ditto ..... "	1 4½
HARD YORK— Delivered at any Goods Station, London. Scrappled random blocks .. per ft. cube	6 10
6 in. sawn two sides landings to sizes (under 40 ft. super) ..... per ft. super	5 7½
6 in. rubbed two sides, ditto "	6 9
4 in. sawn two sides slabs (random sizes) ..... "	3 5
3 in. ditto ditto ..... "	2 8
2 in. self-faced random flags.. per yd. super	8 9

CAST STONE.

Delivered in London area in full van loads, per ft. cube : Plain, 7s. 6d. Moulded, 8s. 6d. Small section cills and copings, 11s.

SAND.

Thames Ballast	11s. 6d. per yd.	delivered 2 miles radius Paddington.
Pit Ballast	10s. 0d. " "	
Pit Sand	12s. 0d. " "	
Washed Sand.....	13s. 0d. " "	
¾ in. Shingle	10s. 6d. " "	
¾ in. Broken Brick	16s. 0d. " "	
Pan Breeze.....	10s. 0d. " "	

CEMENT.

Best British Portland Cement. Standard Specification, delivered London area.	£ s. d.
6 ton loads and upwards site .... per ton	2 11 0
1 to 6 tons site	2 14 0
Alongside Vauxhall in 80-ton lots	2 8 6
"Ferrocrete" Rapid Hardening Cement— 6 ton loads and upwards site	2 17 0
1 to 6 tons site	3 0 0
Alongside Vauxhall in 80-ton lots	2 14 6
"Aquacrete" Water Repellent, "Blue Circle" cement, 30s. per ton on ordinary "Blue Circle" prices.	
"Colorcrete" Nos.1 and 2. Coloured rapid Hardening Portland Cement in 6 ton lots	4 11 0
"Colorcrete" not rapid hardening, according to colour, from £7 to £15 10s. per ton.	
"Snowcrete". White Portland Cement (in free paper bags)	11 5 0
Under one ton .. .. per cwt.	0 13 2
"417" Cement (Ultra Rapid Hardening) Delivered Site London Area in 6 tons lots and upwards	3 11 0
Plus packages at current prices.	
Super Cement (Waterproof), bags extra.	4 1 0

NOTE.—Jute sacks charged at 35s. 6d. nett per ton (20 sacks) for quantities of or exceeding one ton. Less than one ton 1s. 9½d. nett each. Credit 1s. 6d. nett each when returned in good condition within two weeks.

£ s. d.	£ s. d.
Roman Cement 8 10 0	Keene'sCement,White 7 0 0
Parian Cement 7 0 0	" " Pink 6 10 0

Cementone Colours for cement according to tints, per cwt. from £3 5s. 0d.

SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station.

Per 1,000 actual	£ s. d.		£ s. d.
24 by 12	45 5 0	18 by 10	24 0 0
22 by 12	37 17 6	18 by 9	22 12 6
22 by 11	34 2 6	16 by 10	21 10 0
20 by 12	33 0 0	16 by 8	16 12 6
20 by 10	30 5 0		

Having Secured the Contract— what about the Steel Scaffolding?

TUBULAR

—S&C—

SCAFFOLDING

For the lowest Prices apply to the Oldest Firm in the Scaffolding Trade.

STEPHENS & CARTER LTD.

The British Steel Scaffolding Co.

731-761, HARROW RD., N.W.10

Telephone No. Ladbroke 1191 (6 lines)

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	4 2 6	Sirapite, Coarse	4 8 6
" White ..	4 10 0	" Finish	4 14 6
Pioneer	5 5 0		

Above prices for 4-ton loads and over London Area.

Best Ground Blue Lias Lime ..	3 7 6	Grey Stone Lime Chalk Lime	3 1 0 / 3 1 0
Granite Chippings	1 15 0	Hair per cwt.	3 15 0

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d. if returned in good condition within three months, carriage paid.

Stourbridge Fireclay in paper bags, £2 12s. 6d. 6-ton lots at railway depot.

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons ..... Per 1,000 f.o.r. London.

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district	£5 18 0
Ditto hand-made ditto	7 2 0
Ornamental ditto	7 8 6
Hip and valley tiles—Hand-made ..... (per dozen) —Machine-made	14 6 / 13 10

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality	s. d.		Foot cube. £ s. d.
Dry English Wainscot Billets	16 0	to	0 18 0
Dry Slavonian Billet Wainscot ..	17 0	to	1 0 0
Dry Cuba Mahogany logs	21 0	to	1 4 0
Square-edged Honduras Mahogany			0 16 6
Log Cut Honduras Mahogany			0 17 6
American Figured Oak			0 13 0
American Plain Oak.....			0 12 6
Jap, Figured Oak			0 13 0
Jap, Plain Oak			0 12 6
Teak			0 15 6
American Whitewood			0 12 6
African Whitewood			0 8 0
African Mahogany			0 11 0
Australian Walnut			0 19 0
Australian Silky Oak			0 12 6
Best Scotch glue .....per cwt.			5 0 0
Liquid glue..... per gallon			1 2 0

SOFT WOOD.

MERCHANTABLE BRITISH COLUMBIAN PINE.

	Minimum. £ s. d.	Maximum. £ s. d.
Scantlings in imported sizes		
2 in. by 3 in. to 4 in. by 11 in.	47 0 0	58 0 0

PLANED BOARDS.

PRIME CLEAR BRITISH COLUMBIAN PINE.

	Per standard. £ s. d.
1 in. by 11 in } 1 in. by 9 in. }	71 0 0
	Per square. s. d.
1 in. plain edge flooring	56 3
1½ in. ditto	70 6
1 in. tongued and grooved	56 3
1½ in. ditto	70 6

MATCHING.

	per square. s. d.
⅝ in.	40 0
¾ in.	45 3
1 in.	59 0

PLUMBERS' BRASS WORK.

Delivered in London.

M.O.H.

S.D. BIBCOCKS CRUTCH HEAD, FOR IRON

½ in. 33/– ¾ in. 51/– per doz.

TOILET BIB COCKS FOR IRON.

½ in. 60/– ¾ in. 72/– per doz.

S.D. STOP COCKS FOR IRON.

¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
33/–	48/–	86/–	209/–	281/–	456/–	per doz.	

S.D.S. COCKS WITH TWO UNIONS FOR LEAD.

¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
45/–	77/6	123/–	240/–	372/–	624/–	per doz.	

DOUBLE NUT BOILER SCREWS.

¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
5/6	6/8	11/–	24/–	36/–	56/–	per doz.	

HEAVY CROYDON BALL VALVES.

¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.
72/–	115/–	144/–	288/–	384/–	per doz.	

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
14/–	18/6	25/9	45/3	64/9	71/6 per doz.

BRASS SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.
10/9	13/6	25/–	37/–	46/– per doz.

LEAD TRAPS WITH BRASS CLEANING SCREWS.

	1¼ × 6 lbs.	1½ × 6 lbs.	2 × 7 lbs.	3 × 7 lbs.
Lead P.	26/–	34/–	55/–	92/– per doz.
Lead S.	34/–	41/–	67/–	115/– per doz.

SOLDER.—Plumbers', 1/7. Tinmen's, 2/1. Blow pipe 2/6 per lb.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)

See Note at top of preceding page.

METALS.

JOISTS, GIRDERS, &c., to LONDON STATION PER TON—

	£	s.	d.
R.S. Joists, cut and fitted	£24	0	0
Plain Compound Girders	26	10	0
Stanchions	29	0	0
In Roof Work	35	0	0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£	s.	d.	Diameter.	£	s.	d.
¼ in.	23	5	0	½ in.	21	15	0
⅜ in.	22	15	0	¾ in. to 2¼ in.	21	5	0
⅝ in.	22	5	0				

WROUGHT TUBES AND FITTINGS.

Deliveries from works.

Deliveries from London stock further 2½% gross. 10/17

	Tubes. ½"/6" %	Tubulars, and ¼"/6" %	19/24" %	¼"/2" %	Flanges. 2½"/6" %
Light weight	51½	—	47½	51	57½
Heavy weight	44	44	39½	41	49½
Galv. lightweight	30	—	30	30	30
Galv. heavyweight	20	20	20	20	20

Tubes and tubulars sizes ⅛"/⅜" inclusive, charged extra of 5% less gross.

Fittings. Figs. 25/34 5% less gross discount.

Terms.—Nett cash end of month following date of invoice. Carriage paid on lots of £10 nett value and over.

C.I. HALF-ROUND GUTTERS—London Works, per yd. in 6 ft. lengths.

	Gutters.	Nozzles.	Prices ex Stop ends.
3 in.	1/5½	1/2½	4½d.
3½ in.	1/7	1/4	4½d.
4 in.	1/7	1/6	6½d.
4½ in.	1/8½	1/8½	7½d.
5 in.	2/0½	2/0	9d.

O.C. GUTTERS.

3 in.	1/10½	1/7½	5d.
3½ in.	2/1½	1/7½	6½d.
4 in.	2/1½	1/8½	7½d.
4½ in.	2/2½	1/11½	8½d.
5 in.	2/8½	2/3	10½d.

RAIN WATER PIPES.

Per yd. in 6 fts.	Pipe.	Bends. Stock angles.	Branches.
2 in.	2/2½	1/5½	2/2
2½ in.	2/3½	1/8½	2/7½
3 in.	2/8½	2/1½	3/2
3½ in.	3/2½	2/6½	3/7½
4 in.	3/8½	3/0½	4/5

NETT PRICES.

Tonnage allowance—4-ton lots, 5 per cent. 2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

Per yd. in 5 fts.	Pipe.	Bends.	Branches
2 in.	3/9½	2/7½	3/2
2½ in.	4/5	2/10½	3/11½
3 in.	4/9	3/2	4/8½
3½ in.	4/10½	3/11½	5/5½
4 in.	5/3½	4/5	6/3½

L.C.C. COATED DRAIN PIPE.

	cwt.	qr.	lbs. in 9 fts.	per yard.	Bends.	Branches.
3 in.	0	3	14.	6/0	7/3	11/6
4 in.	1	1	17.	8/7	8/2	14/5
5 in.	1	2	18.	10/7	14/9	22/3
6 in.	2	0	1	12/9	17/0	29/8

Gaskin, 75/- per cwt.

	Per ton basis in London. £	s.	d.
IRON.—Staffordshire Crown, Merchant quality	18	7	6
IRON.—Staffordshire Marked Bars	19	7	6
Mild Steel Bars	1/	15	0
Mild Steel Hoops	21	10	0
	Ex Merchant's Stock, per ton (two-ton lots).		
Soft Steel Sheets, C.R. and C.A.—			
20 gauge	24	17	6
24 gauge	25	2	6
26 gauge	25	17	6
Galvanised Corrugated Sheets, 6 ft. to 9 ft.—			
20 gauge	27	0	0
24 gauge	27	10	0
26 gauge	28	15	0
Galvanised Flat Sheets, C.R. and C.A.—			
20 gauge	28	10	0
24 gauge	29	0	0
26 gauge	30	5	0
	Per ton £	s.	d.
Cut Nails, 3 in. and up	28	10	0

ALL NETT.

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 2s. 4d. to 2s. 7d. per foot super.

PAINTS, &c.

	£	s.	d.
Raw Linseed Oil (5 galls.) .. per gallon	0	7	0
Boiled Linseed Oil (5 galls.) .. „	0	7	4
Genuine Ground English White Lead, per cwt.	3	11	9
Genuine White Lead Paint, 14-lb. tins free, per cwt.	4	16	6
Genuine Red Lead „	2	18	6
Linseed Oil Putty (Kegs extra) .. „	1	5	3
Size, XD quality .. fkn.	0	4	9

Turpentine substitute can be obtained and prices vary according to quality from 3/8 gallon upwards.

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from February 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A1	A2	A3	B	B1
Craftsmen	2/0½	2/0	1/11½	1/11	1/10½	1/10
Labourers	1/7	1/6½	1/6½	1/6	1/5½	1/5½

Aberdeen	A	Dumfriesshire	A2	Inverness	*	Perthshire	A2
Ayrshire	A	Dundee	A	Inverurie	A1	Peterhead	A1
Banff	B	Dunoon	A	Kincardineshire	A2	Renfrewshire	A
Berwickshire	A2	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A2
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A2
Doune	A	Forfarshire	A2	Moray and Nairn	B	Stewartry	A2
Dunblane	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A2	Stornoway	A2
Dumfries	A1	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

*This town has its own rates: Masons, 1/9½; Carpenters, 1/9½; Slaters, 1/9½; Plumbers, 1/10; Plasterers, 1/10½ but 1/11 is paid owing to the scarcity at present; Painters, 1/9½ and Labourers, 1/5.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 205

VARNISHES, &c.

		Per gallon. £	s.	d.
Oak Varnish	Outside	0	16	0
Fine do.	„	0	18	0
Fine Copal	„	1	0	0
Pale Copal	„	1	2	0
Pale Opal Carriage	„	1	6	0
Best do. do.	„	1	14	0
Floor Varnish	Inside	1	0	0
Fine Pale Paper	„	1	0	0
Fine Copal Cabinet	„	1	4	0
Fine Copal Flatting	„	1	2	0
Hard Drying Oak	„	1	0	0
Fine Hard Drying Oak	„	1	1	6
Fine Copal Varnish	„	1	2	6
Pale do.	„	1	14	0
Best do.	„	1	4	6
Best Japan Gold Size	„	1	14	6
Best Black Japan		0	12	0
Oak and Mahogany Stain (water)		0	14	0
Brunswick Black		0	9	6
Berlin Black		0	16	0
Knotting (patent)		0	17	0
French and Brush Polish		0	14	0
Liquid Dryers in Terebene		0	11	0

LEAD, &c.

(Delivered in London.)	Per ton. £	s.	d.
LEAD.—Sheet, English, 4 lb. and up	38	0	0
Pipe in coils	38	10	0
Soil pipe	42	10	0
Compo pipe	47	10	0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton } £18 0 0.

Patent Roof GLAZING

The Hall Mark AYGEE of Craftsmanship

Actual manufacturers of patent glazing. Lantern and Skylights, Metal Windows, etc.

AYGEE LTD.

Metal Window Manufacturers, Light Steel Constructional Engineers.

100 WESTMINSTER BRIDGE RD., S.E.1

Ring: Waterloo 6314

(6 lines)

THE SCOTTISH BUILDER

NEW BUILDINGS

CARLUKE.—Plans prepared for reconstruction and additions to billiards-rooms for garage, for which the architects are Adamson & Son, 11, Union-st., Carluke.

CARLUKE.—Plans prepared for alterations and additions, the architects being Forrest & Agnew, School-la., Carluke.

GLASGOW.—Plans prepared for store buildings, for which the architects are Fleming Bros., Refuge Assurance-bldgs., Glasgow.—Plans prepared for garage, the architect being Harold P. Murdoch, 30, Anchester-la., Glasgow.

GLASGOW.—Plans in hand for alterations and additions at Southern General hospital, Govan, for which the architect is Robert Bruce, Municipal-bldgs.

NEW COMPANY

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery lane, W.C.2, from the documents available at the Companies Registry.

BRUCE HOW, LTD. (384306). Regd. Dec. 10. 55, Palmerston-rd., E.17. Bldrs.' mchts., etc. Nom. cap.: £1,000. Dirs.: Mrs. A. L. How and J. L. How.

GLASS.

SHEET GLASS, ORDINARY GLAZING QUALITY CUT SIZES.

	Per ft. super. d.
18 oz.	3½
24 oz. Clear or "R" quality	5
26 oz.	6½
32 oz.	8½

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

Over 500 ft. super of all kinds.	Per ft.
Rolled plate, ¼ in.	6½d.
Rough cast double rolled, ¼ in.	7½d.
Rough cast double rolled, ⅜ in.	7½d.
Figured rolled, and Cathedral, white	6½d.
Figured rolled and Cathedral, tinted	9½d.
Rolled Sheet	6d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick	10½d.

Rolled plate is the same price as rough cast double rolled.

	Per ft. s.	d.
Wire Rolled, ¼ in. thick	0	9½
Wire Cast, ¼ in. thick	0	9½
Georgian Wired Cast	0	10
"Calorex" Sheet, 21 oz.	2	6
„ „ 32 oz.	4	0
„ Cast, ¼ in. thick	0	9½
„ „ ⅜ in. thick	1	0
„ „ ½ in. thick	1	2
Non Actinic Glass, ¼ in. thick	0	9½
„ „ „ ⅜ in. thick	1	0
„ „ „ ½ in. thick	1	2

"VITA" GLASS.	Per ft. s.	d.
"Vita" Plate Glass, about 11 in. thick—		
To 7 ft. super	5	0
Over 7 ft. super	7	6
"Vita" Sheet Glass, about 18/20 oz.	2	0
Cathedral "Vita" Glass:		
¼ in. thickness	2	0
⅜ in. „	3	0
½ in. Georgian Wired "Vita" Glass	3	6

GLASS BRICKS.

	s.	d.	
P.B. 1—8 in. × 4½ in. × 3½ in.	2	9	each nett
P.B. 2—5½ in. × 5½ in. × 3½ in.	2	6	„
P.B. 3—7½ in. × 7½ in. × 3½ in.	3	6	„
P.B. 32—7½ in. × 7½ in. × 3½ in.	3	6	„

Radiused Corner Bricks to match up with—

P.B. 2	4	6	each nett
P.B. 3	6	0	„
P.B. 32	6	0	„

TECHNICAL TRAINING FOR ARMY CADETS

W.O. SYLLABUS FOR TRADES.

A SCHEME of technical training in the Army Cadet Force (Open Units) has been devised and issued by the War Office, designed to provide within the Force facilities for basic technical training for cadets who wish to enter the technical arms of the Service or to follow technical trades in other arms of the Service. Such courses will qualify for award of Certificate "T." There will be three types of courses: A—of J1 and J2 standard provides for the local education; B—courses of a more practical nature carried out at any workshop, school or other centre approved by the County Cadet Committee; C—simpler practical courses, carried out on similar lines to Course B. Following is the Syllabus for Course B—Applied Science: Building Trades.

The pamphlet states: This course is intended to be specially suitable for cadets in the building and allied trades who may wish to enter the Royal Engineers as tradesmen. Some cadets will be capable of proceeding to a National Certificate Course in Building and may wish to do so. It may be necessary for them to take the ordinary J1 and J2 courses in order to qualify for entry to a senior technical college, whereas the course set out below would not confer this qualification; in that case they should be encouraged to take the ordinary course if facilities are available.

The course set out below is intended to provide a general elementary introduction to the knowledge required by bricklayers (including concretors), stonemasons, carpenters, joiners, plumbers and hot water engineers.

The treatment of the subject should be simple, descriptive, and suitable to the age and experience of the cadets. Examples should be drawn from the practice of the Services where possible, but illustrations from local housing und from municipal undertakings should be freely used and may be supplemented by lantern slides and films. On the evening devoted to workshop practice, practical work related to the class lessons should be carried out in the workshop or in the open air, and, where building schools are within reach, their facilities should be used if suitable arrangements can be made. Conducted visits should be made to near by public works of interest. The fundamental scientific principles which are introduced should be driven home by suitable class demonstrations and laboratory experiments where possible.

Scope of the Course.

(1) How is a building held together? Common forms of walling in brick and stone. Binding. Mortar; (2) How is a building held up? Foundations. Carrying capacity of soils. Types of soils (as foundations); (3) Choice of site for house or camp. Land formation. Subsoil. Effect of elevation. Natural drainage.

(4) Wells and springs. Water supply systems. Source of contamination. Reservoirs and tanks; (5) Bricks. Sizes and types. Manufacture. Strength. Water absorption. Testing; (6) Stone. How to distinguish sandstones, limestones, granites, etc. Weathering. Water absorption. Action of frost. Testing.

(7) Lime. Burning and slaking. Uses of lime. Mortars. Testing; (8) Cement and plaster. Manufacture; storage; testing; use; (9) Concrete. Sands and aggregates, examination and testing. Proportioning concretes. Simple tests, including slump tests. Effect of soil and clay in sands and aggregates.

(10) Setting out sites, foundations and drainage. Simple levelling with spirit levels and boning rods. Distances with rod and tape or chain angles. Plumb rules. Pegging and bench marks; (11) Excavations. Strutting in simple trenches. Slope of soil in embankments and cuttings. Dug-outs and tunnelling; (12) Timber. Characteristics and uses of common kinds. Moisture content. Seasoning. Preservation. Value of dryness.

(13) Hutments and other timber constructions. Floors, walls and roofs. Wind pressures. Weighting or otherwise securing light structures; (14) Bridging, simple types. Timber beams; strength; jointing; use of bolts. Struts and ties; (15) Erection of brick and stone buildings. Angles and openings. Lintels and doorways. Roofs. Exclusion of rain and dampness. Damp-proof courses; lead and other impervious sheet.

(16) Doors and windows. Construction. Ventilation. Admission of light and sun in northern, provision of shade in southern, latitudes; (17) Mechanics of levers and beams. Crowbars. Beams and cantilevers. Reactions. Simple scaffolding and gantries. Value of triangulation. Shoring; (18) Machines. Pulley blocks. Jacks. Manual and pneumatic hammers, etc. Simple cranes and derricks. Handling heavy units.

(19) Power-driven tools. Small power units, petrol and electric; (20) Metals in the building trades. Lead, brass, tin, copper, iron and steel; Properties and uses of each. Joining metals; soldering, brazing, welding and riveting; (21) Water supply equipment. Driving wells. Catchment areas for surface supplies. Simple pumping equipment. Pipe runs and cisterns. Water pressure. Hardness. Softening. Filtering.

(22) Drainage and sanitation. Draining damp sites. Camp sanitation. Construction of latrines. Small sewage treatment units. Sanitary precautions. Incinerators; (23) Heating and cooking equipment. Stoves; flues; draught; nature of heat. Conduction, convection and radiation. Conservation of heat in field kitchens. Central heating systems; hot water and steam. Insulation of roofs, walls, pipes, etc.; (24) Lighting. Oil, acetylene and electric lighting units; (25) Roads and heavy constructions. Setting out roads. Gradients, embankments, retaining walls. Rough levelling, bulldozers, etc. Simple calculations of volumes. Landslides. Water-logged soils. Clay-beds. Use of explosives in blasting and demolitions.

A Comment.

The syllabus will be regarded as remarkably comprehensive and likely to interest boys of the age group (14 to 17½) concerned. A notable omission appears to be any reference to the *purpose* of building and to the tenets of seemliness and good design that should govern even utilitarian Service structures. Boys (and for that matter, men) work better if they have learnt to understand the object and appreciate the final form of their labours. In a syllabus extending over 53 lessons, room should be found for a few introductory talks on architecture and the bare principles of design. There is no boy who would not be thrilled and inspired by a description of the building of the Roman aqueducts or of Wren's work on St. Paul's. We hope that the syllabus may be revised to permit of this, to our thought, necessary addition.

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WAR SAVINGS

A MEETING of the War Savings Committee of the Building, Civil, Engineering and Allied Trades was held on February 25, Mr. George Hicks, M.P., being in the chair. Others present were: Messrs. A. H. Adamson (L.M.B.A.), Coleridge Simpson (Federation of Associations of Specialists and Sub-Contractors), T. Pugh (N.F.B.T.O.), W. T. Creswell, K.C. (hon. secretary), and E. C. H. Jones, F. N. Withers, A. W. Sanders and J. A. Sinclair (National Savings Committee).

MR. WITHERS reported that, following on the last meeting, all the principal contractors had been visited. As a result, four contract and two site organisers had been appointed by large contractors. Difficulty had arisen concerning the payment of organisers, and it had finally been arranged that their salaries and expenses should be included in the cost of the contract.

At the CHAIRMAN'S suggestion, it was agreed to invite the trade papers and certain of the more important contractors to be represented on the committee. It was also agreed that prominent contractors from the Regions should be co-opted to the Committee.

The HON. SECRETARY proposed that a small publicity committee should be formed to meet frequently with the object of creating good background publicity. It was agreed that this should be done, and that the publicity officers of the principal organisations represented on the Committee should be invited to form this sub-committee.

FUTURE CONSTRUCTION

The Editor welcomes authentic information for this section from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Tuesday morning.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

MARCH 13.

Grimsby T.C.—Adaptations at 272, Hainton-ave., for day nursery. J. V. Oldfield, B.E. and S. Dep. £2.

MARCH 18.

Gillingham T.C.—Erection of Anderson-type school shelters at various sites. W. H. Dobson, M.Inst.M.&Cy.E., B.E. Dep. £1 1s

MARCH 20.

Barnstaple T.C.—Extension of slaughter-house, Tuly-st. L. C. Adams, B.S., The Castle.

Bilston T.C.—Erection and fitting up of prefabricated M.O.W.P. standard hut for nursery. A. V. Williams, T.C. Dep. £2 2s.

Consett U.D.C.—Erection of 27 brick domestic shelters. T. P. Leath, Property S., Council-chbrs., Blackhill.

MARCH 24.

Belper R.D.C.—Reconstruction of cowshed at Cross-o'-th'-Hands farm. J. Laycock, Council Offices, Derby-rd., Belper.

MARCH 27.

Montgomeryshire E.C. — Construction of canteen kitchen and dining-room at Llandysilio. T. Glyn Davies, D. of E., County Ed. Offices, Newtown. Dep. £2 2s.

MARCH 28.

Dublin Commissioners of Public Works.—Erection of offices for film censor. Office of Public Works. Dep. £1.

PAINTING, ELECTRIC LIGHTING, HEATING, ETC.

MARCH 15.

Bradford E.C.—External painting of various schools. City Architect.

MARCH 16.

Bury Higher E.C.—External painting of Technical College. B.E.

ENGINEERING, IRON AND STEEL

MARCH 15.

†Thinjoe R.D.C.—For extensions of water main in two parishes. Hunt & Coates, 84, Guildhall-st., Bury St. Edmunds. Tenders by March 18.

MARCH 27.

Sunderland C.B.—Sinking of borehole at Highfield Institution. J. E. Lewis, B.E. Dep. £2 2s.

APRIL 5.

Whittingham County Mental Hospital.—Construction of reinforced concrete water tower and provision and laying of approx. 1,000 yds. of cast-iron water mains, etc. H. B. Ward, M.Inst.C.E., Consulting E., 38, Hoghton-st., Southport. Dep. £5 5s.

APRIL 17.

Kingston-upon-Hull T.C.—Construction of reinforced concrete forebay in River Humber and 650 lin. yds. of 9 ft. 6 in. dia. brick and concrete outfall sewer. City E. Dep. £10 to City Treas.

ROAD, SEWERAGE AND WATER WORKS

MARCH 13.

Ely R.D.C.—Providing and laying 700 lin. yds. of 7 in. dia. asbestos cement pipes. Silcock & Simpson, Consulting E., 10, Park-row, Leeds, 1. Dep. £1 1s.

Wem. U.D.C.—Surface dressing of roads. S.

MARCH 17.

Halifax C.B.—Surface dressing.—B.E. Dep. £1 1s.

MARCH 20.

Maldon and Coombe T.C.—Tar spraying and gritting of roads. B.E.

MARCH 22.

Harpenden U.D.C.—Tar spraying of roads. S.

MARCH 24.

Woodhall Spa U.D.C.—Surface dressing. S.

ROAD MATERIALS, ETC.

MARCH 13.

Bacup T.C.—B.E.

Bury C.B.—B.E. and S.

Melton Mowbray U.D.C.—S.

MARCH 15.

Clayton-le-Moors U.D.C.—S.

MARCH 18.

Ashington U.D.C.—S.

MARCH 20.

Redcar T.C.—B.E.

MARCH 22.

Burgess Hill U.D.C.—E. and S.

MARCH 25.

Ashford (Kent) U.D.C.—S.

MARCH 27.

Solihull U.D.C.—E. and S.

PUBLIC APPOINTMENTS

MARCH 17.

East Lancs Joint Planning Committee.—Planning Officer, £750 p.a. Forms from H. Copland, Secretary, County Offices, Lincoln.

Manchester T.C.—Temporary Senior Appointments in Planning Section of City Sur. Dept. R. H. Adcock, T.C.

MARCH 20.

Herts C.C.—Full-time Teacher at Junior Day Technical School in Building, Watford. Forms from Principal, Watford Technical and Art Institute.

Newcastle-on-Tyne E.C. — Appointment of Headmaster at Junior Technical School of Building Crafts. £550-£25-£700, plus war allowance. Forms from Thos. Walling, D. of E., City Ed. Office, Northumberland-rd., Newcastle-on-Tyne.

***Sevenoaks R.D.C.** — Temporary full-time Accounts Assistant (male). £300 p.a., plus war bonus. Clerk to the Council.

MARCH 23.

***Northern Polytechnic.**—Full-time post of Teacher of Building, Construction and Allied Subjects. Particulars from Clerk to the Governing Body, Holloway-rd., London, N.7.

***Northern Polytechnic.**—Full-time Teacher of Carpentry and Joinery and Plumbing. Particulars from Clerk to the Governing Body, Holloway-rd., London, N.7.

MARCH 25.

***Doncaster E.C.**—Full-time Teacher of Building Subjects at Junior Technical School. Application forms (stamped and addressed foolscap envelope) from V. Clark, Chief Ed. Officer.

MARCH 28.

***Leeds E.C.**—Full-time Lecturer at College of Technology. Forms from George Guest, D. of E., Ed. Offices, Leeds, 1.

MARCH 31.

West Sussex C.C.—(1) Teacher of Building Subjects at Horsham Building School; (2) Two Masters at Worthing Building School. Forms from D. of E., County Hall, Chichester.

APRIL 3.

***Essex E.C.**—Applications invited for post of Lecturer in Building Subjects. For forms of application apply, enclosing stamped and addressed envelope to Clerk to Governors, South-East Essex Technical College and School of Art, Longbridge-rd., Dagenham, Essex.

NO DATE.

***Kent E.C.**—Full-time Senior Assistant at Department of Architecture. Principal, Medway School of Arts and Crafts, Eastgate, Rochester.

GENERAL BUILDING WORK

Bakewell.—R.D.C. received permission to erect four houses at Elton, at £2,716.

Barrow-in-Furness. — Lakeland Laundries, Ltd., Abbey-rd., propose improvements at Ingleton Lakeland laundry.

Burton-on-Trent.—E.C. propose extensions at technical institute.

Darlington.—T.C. seeking M.H. consent to erect 50 temporary bungalows immediately.

Durham.—Hostel for mine trainees to be built at Leadgate. Plans by Ministry of Works.

Hampton-in-Arden.—Parish Council propose parish assembly hall.

Hucknall.—U.D.C. propose 'bus station.

Lancaster.—Libraries Committee propose improvements at public library.

Macclesfield.—Board of Governors of Infirmary propose alterations for X-ray department.

Manchester.—T.C. approved: Erection of hay shed at Chat Moss; nursery at Cambrian-st. district; structural alterations, etc., at Union Chapel, Oxford-rd., for X-ray unit, at £3,100; child welfare centre, Moston, at £375.—Catholic Authorities propose public elementary school, for Infants and Juniors, at White Moss estate, Blackley.

Middleton.—T.C. propose crematorium at Moorclose estate.

Newcastle-under-Lyme. — C.C. authorities, Bishops Campaign, Wolverhampton, acquired site for church at Bradwell Hall Farm estate.—Parker's Burslem Brewery, Ltd., propose hotels at Clayton-rd. and Talke-rd.—Hollins & Jones (AA.), Lloyds Bank-bldgs., preparing plans for Road Transport hostel and enclosed parking ground on Talke-rd.—E.C. propose reinstatement of Ellison-st. Infants' school.—T.C. propose erection of 12 'bus shelters on approved sites, also public conveniences on various sites.—T.C. approved: Structural alterations at "Malt Shovel" Inn, Chesterton, for Ind, Coope & Allsopp, Ltd., Higherland; two "Maycrete" nurses' blocks at Bradwell sanatorium, for Newcastle Joint Isolation Board.—Ind, Coope & Allsopp, Ltd., Higherland, propose structural alterations at "Crown" Inn, Red-st.

Northampton.—J. N. Comper, 228, Knights Hill, West Norwood, S.E.27, prepared plans for improvements at St. Peter's Parish Church, Marefair, for Vicar and Churchwardens.

Oswestry.—T.C. propose new public library.—R.D.C. seeking permission to complete 16 houses at Weston Rhyn.

Preston.—T.C. approved prefabricated huts-ments as extensions at Park school, at £3,100.

Pendleton.—Vicar and Parochial Council of St. Peter's Church propose Sunday-school, at £1,200.

Rishton.—Rev. R. Kirkham and managers of Church school propose Junior school.

Rochdale.—T.C. approved garage for Taylor Bros., coal merchants.

Rotherham.—T.C. approved: Erection of Dutch Barn at Manor Farm, Dalton Parva, for Health Committee; additional laboratory and workshop equipment at Technical college, at £2,010.

Sheffield.—M. Bernard & Co., Ltd., wholesale bakers, 54, West Bars Green, propose new buildings.

Sunderland.—Store and garage to be erected to plans by G. T. Brown & Son, Fawcett-st., Sunderland; Matkin & Hawkins, Barclays Bank-chbrs., Sunderland, are architects for alterations to premises for J. Goldbergh.—Plans by R. C. Blanfield, Barnard Castle, for three flats and a shop at Parkside-ter., have been approved.—Binns, Ltd., propose to add another floor to one of their depts. Plans by W. & T. R. Milburn, 17, Fawcett-st., Sunderland; Marshall, Tweedy & Bourn, Grainger House, Newcastle-on-Tyne, are architects for garage and extensions.

Sunderland.—E.C. to provide lavatory accommodation and store house at St. Columba school.

Thorne (Doncaster).—R.D.C. propose public library.

Wolverton.—U.D.C. approved massage and electrical treatment clinic.

***York.**—York Co-operative Society, Ltd., Railway-st., propose erection of stores at Flaxton.

BRITISH RESTAURANTS AND CANTEENS

Denbighshire. — E.C. propose canteen at Glynceiriog school.

Hasland.—Derbyshire E.C. propose alterations and equipment for school kitchen at Hasland Hall school, at £1,300.

Lancaster.—E.C. propose erection of school canteen kitchen and dining-hall at Skerton.

Manchester.—E.C. approved: Meals kitchen and dining-rooms at Benchill Municipal school, Benchill-rd., Wythenshawe; erection of meals kitchen at Hyde-rd. school, Gorton.

Netherton.—Lancashire E.C. propose dining-room at Temporary school.

Newcastle-under-Lyme.—T.C. propose structural alterations at Newcastle B.R.

Northants.—E.C. propose structural alterations at Public Assistance Institution, Wootton, for central kitchen, at £3,000.

Sedgley.—U.D.C. approved messroom for A. Allen & Son, colliery furnishers.

Swinton and Pendlebury.—E.C. propose canteen kitchen at Moorside school and canteen scullery at Junior Infant block.

Warrington.—E.C. proposes extension of school meals service.—Committee propose structural alterations to premises for Forces canteen.

West Hartlepool.—E.C. seeking site for fourth central kitchen.

West Riding.—E.C. approved estimates of £230,500 for expansion of school meals service.

A.R.P. SCHEMES

PROVINCIAL.

Bury.—T.C. approved first-aid room for Peel Mills, Ltd., cotton spinners.

Newcastle - under - Lyme. — T.C. received approval of Regional Commissioner for nine static water tanks.

Portadown.—Tenders submitted for erection of three static water tanks, for U.D.C. R. A. Liggett, B.Sc., Town S.: J. Mills McCormick, Portadown, £1,520; Thos. Lindsay & Sons, Richview-st., Belfast, £1,517; Calvert Bros., Bleary, Lurgan, £1,317; Collin Bros., Ltd., Portadown, £1,257; Robt. Heathwood, Portadown, £1,254.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Durham.—For improvements at Barnard Castle Institution, for C.C.: *G. W. Addison, Bishop Auckland, £358.

Durham.—Erection of hostel at Ferryhill: *H. E. Pitt, Ltd., Leopold-st., Millfield, Sunderland.

Hebburn.—For rebuilding of a day nursery school at Byron-st: *George Carter, Ltd., Carliol House, Newcastle-on-Tyne.

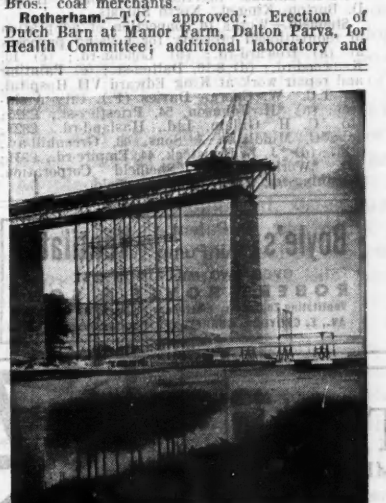
Leamington Spa.—Erection of nursery at Pound-la., Lillington. J. Sutcliffe, B.S.: *Stowe & Co., Ltd., 111, Regent-st., Leamington Spa, £1,967.

¶London (Air Ministry).—List of new contracts to value of £500 or over for week ended March 4.

General maintenance work: Gilbert Cole Estates, Ltd., Northampton; Francis Jackson Developments, Ltd., Northwood, Middx; R. Strudwick & Co., Ltd., Horsham; A. N. Coles (Contractors), Ltd., Plymouth; Pochins (Manchester), Ltd., Altrincham.

Heating and hot water supply work: Brightside Foundry and Engineering Co., Ltd., Birmingham.

Electrical work: General Electric Co., Ltd., London, W.C.2.



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London (Ministry of Works).—Contracts placed by M.O.W. during week ending March 2:—

London: Building work, Wm. Nicholson & Son (Leeds), Ltd., 7, Sheaf-st., Leeds 10.

Cardiganshire: Building work, E. Turner & Sons, Ltd., Penarth-rd., Cardiff.

Derbyshire: Building work, Moston Brick & Building Co., Kenyon-la., Moston, Manchester.

Glam: Building work, William John (Llantrissant), Ltd., Castle House, Llantrissant.

Herts: Building work, G. W. King, Walsworth-rd., Hitchin.

Lancs: Building work, Kearsley & Gee, Ltd., Heath-rd., Saw Mills, Ashton-in-Makerfield.

Leicester: Building work, Bowles & Son, 8, Gladstone-st., Leicester.

Lincs: Building work, R. M. Phillips & Son, Ltd., Estate Yard, Brigg, Lancs.

Middx: Building work, H. C. Leach, 8-12, Southfield-rd., Waltham Cross.

Notts: Building work, G. Wimpey & Co., Ltd., Chester-rd., Castle Bromwich; Vic Hallam, Ltd., Marlpool, Heanor, Derby.

Staffs: Building work, G. & J. Seddon, Ltd., 55, Duke-st., Fenton, Stoke-on-Trent.

Warwickshire: Civil engineering, R. M. Douglas (Contractors), Ltd., 395, George-rd., Erdington, Birmingham; building work, Garlicks, Ltd., 42, Far Gosford-st., Coventry; B. Whitehouse & Sons, Ltd., 247, Monument-rd., Birmingham.

Yorks: Building work, Jonathan Partington, Ltd., Middleton Junction, Manchester; T. Jenkinson & Sons (Doncaster), Ltd., Bentley-rd., Doncaster.

London (War Dept.).—Works contracts placed by War Dept. for week ended March 4:—

Shetland: Miscellaneous work, J. Bisset & Sons, Ltd., Aberdeen.

Roxburghshire: Miscellaneous work, A. Inglis & Sons, Hawick, Roxburghshire.

Yorks: Miscellaneous work, Wm. Bellerby, Ltd., York.

Notts: Miscellaneous work, Hugh Cox & Sons, Ltd., Heanor, Nottingham.

Norfolk: Miscellaneous work, J. L. Kier & Co., Ltd., Setch, King's Lynn.

Wilts: Miscellaneous work, Bennie Lifts, Ltd., London, S.E.11.

Hampshire: Roadwork, Fitzpatrick & Son (Contractors), Ltd., London, E.3; A. G. Saunders, Ltd., Southampton.

Manchester.—Construction of building to house rotary straining and chlorination plant at Longsleddale, for Water Committee. G. Noel Hill (F.), City Architect; *R. E. Reay, Penrith, Westmorland.

Middlesbrough.—Erection of 15 houses at Roseberry-rd.: *J. H. Crawford, Middlesbrough (subject to M.H. approval).

North Shields.—Erection of factory: *Hastie D. Burton, King-st., North Shields.

Sheffield.—Works in connection of adaptation of requisitioned property for housing purposes at (a) Howard-rd.; (b) London-rd.; (c) 10, Kenwood-rd.; (d) 8-10, Dalton-st.; (e) Painting and repair work at King Edward VII Hospital, for T.C. W. George Davies (F.), City Architect: (a) *H. Johnson, 54, Priestley-st., £226; (b) *C. H. Gillam, Ltd., Hasland-rd., £823; (c) *C. Middleton & Sons, 48, Greenhill-av., £184; (d) *J. L. Hanstock, 44, Empire-rd., £231; (e) *Works Dept., Sheffield Corporation, Worthing-rd., £500; all of Sheffield.

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"LANDSCAPE MINING"

UNDER the auspices of the Ministry of Works and the Ministry of Fuel and Power, Messrs. Taylor Woodrow Construction, Ltd., have been responsible for the production of a film under the above title, showing how coal is produced by the opencast method. The film, which runs for 20 minutes, shows at the start of the operations the green fields, then surveying and prospecting, laboratory tests and analyses, the heavy work of removing soil and clay known as "overburden," exposing and removing the seam of coal, transportation to and distribution from the marshalling yards, the replacement of the top soil, and finally the recultivation of the land.

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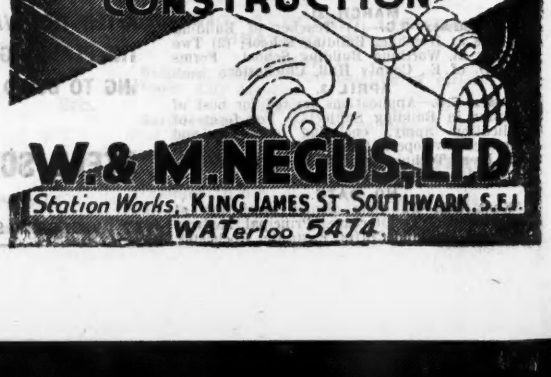
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